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CLINICAL LECTURE.

THE NATURE AND TREATMENT OF ORGANIC STRICTURE OF THE URETHRA IN THE MALE.*

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Continuing my remarks from the first lecture, let us suppose that you have been called to treat a stricture near the bulbo-membranous urethra, the result of an old gonorrhœa, in a man who is still able to be about. His symptoms have in time, become troublesome, and he wishes to be cured. You have already, by examination on a previous day, demonstrated the existence and locality of a tight stricture. The patient has had a full night's rest, has remained in bed the morning of operation, his bowels have been fully moved by a laxative and injection, and he has taken five or six grains of quinine and half an ounce of whiskey, an hour before your arrival.

In very many cases I operate without anæsthesia, using instead, ordinarily, an injection of half a drachm of a two per cent. solution of cocaine, thrown into the urethra fifteen minutes before I begin. If the stricture be irritable, or the patient nervous, I employ a stronger solution, or, preferably, etherize the patient.

We will suppose an operation without ether. Let the patient be placed on a narrow table—a bed is too low and inconvenient—and let each leg be wrapped separately in a blanket, let the shoulders be slightly elevated, and let him be directed to keep his mouth open during the manipulation, so as to prevent abdominal straining and tension.

If you are not using ether, watch your patient's face and encourage and quiet him. By all means, be gentle with him, and try thus to win his confidence. Above all things, have confidence in yourself; work with the idea that you will pass that stricture, if not to-day, yet in a day or two—sooner or later—and that your success is only a question of time; believing this, your success will be certain.

To begin, with a small syringe, throw into the urethra half a fluid drachm of carbolized olive oil, then, with one hand grasping the penis behind the head, pass a filiform along the inferior floor of the urethra until it is arrested, as it most probably will be at the point of stricture. Then rotate it slightly, and if the point advances, well and good; if not, stop with this whalebone, and do not push it. Take another and repeat the process; if this fails, another, and so on until five or six are *in situ*. Then take each one in turn, and rotate it slightly between thumb and finger; use no force, but let every motion be gentle, the more so the better the chance of immediate success. Remember that there must be an opening through the stricture—it may be small and out of the centre, but tact will surely find it; force or impatience, never.

Perhaps you may not at first succeed with your filiforms. If so, desist for a moment, leaving them in place; then begin again, essaying each one in turn, and the chances are that, at last, one will find the opening, traverse the stricture, and enter the bladder. When it does pass the stricture you will be surprised to find how easily it travels, and you will then recognize that the hindrance was not the tightness of the stricture or its tortuosity or crookedness, but simply a difficulty in finding and entering its mouth or opening. This once accomplished, its passage is the affair of a second.

Occasionally it happens, even after fair efforts, that the stricture opening is not de-

*Second Lecture.—The first Lecture was published in the preceding number of the REPORTER.

tected. I then withdraw two or three filiforms from the urethra, and reinsert them, working from the *opposite side* of the patient. Sometimes I take all out, and begin anew from the changed side, and often, very often, I have found that a whalebone carried down under these new conditions will pass without check into the bladder. The explanation of this probably is, that the hand instinctively works towards itself, and so directs the filiforms. Thus it happens that if the stricture opening be excentric, or towards the opposite side of the urethra, the filiform end may travel away from rather than towards the opening sought. Should you fail in your first attempt, it may be necessary to have more than one sitting (to use an artist's expression), and it is better to repeat than to prolong the effort. As to their duration and continuance, you must use your judgment and common sense. If the patient becomes tired or irritated, and especially if there is steady slight bleeding, I advise you to stop for a time. You are probably doing mischief with the whalebone points, using, perhaps unconsciously, a harmful force. The clots of blood, too, form sticky masses, which mask the passage.

By these manipulations—carefully, gently, patiently repeated—you will, I am sure, in the course of one or two trials, pass the stricture, and the first and often the hardest part of the operation is accomplished. The rest is a matter of adroitness and good judgment, and, in the exercise of the latter, it is often well, when the stricture is very tight, to defer the dilatation twenty-four or forty-eight hours, in the mean-while *leaving the whalebone* in the urethra. It can easily be retained, by tying it to the pubic hair. In allowing it to remain in the urethra, it is well, however, to withdraw the extremity from the bladder, so as to avoid irritating the sensitive vesical neck. The filiform thus left produces a degree of continuous dilatation of the stricture and facilitates the more ready introduction of the metallic dilators. For distension of the stricture, I advise the consecutive use first of Sir Henry Thompson's dilator, and next that of the late Professor S. W. Gross. The circumference of the point of the former is seven, and of its thickest part eleven millimeters. By screwing apart its blades, the urethra can readily be dilated to twenty-one or twenty-two, a calibre large enough to permit the introduction of the powerful Gross dilator. This latter instrument with a point of 14, and a shank of 17 or 18, is very efficient, and if properly used, safe.

To return to our procedure; we will suppose that the filiform has passed the stricture, and that its point is in the bladder. It is the guide for the Thompson dilator, and you may think that the latter can readily be pushed over the former, and through the stricture. This is only in part true, and it is just here that mistakes are often made, which have resulted in the failure of the surgeon, and have brought the whole procedure into disfavor. To avoid accidents, proceed in this way: Thread the filiform end through the tunnel of Thompson's dilator, and carefully carry the point of the latter down to the stricture, not by forcibly thrusting the dilator, but rather by drawing upon the whalebone, and gently sliding the metallic instrument downwards and onwards. When the stricture is reached, which will be at once recognized by its resistance, cease absolutely to push or slide the dilator, on the filiform through the stricture. If you persist in the previous sliding motion, you will run the risk of cutting the whalebone, with the perforated end of the instrumen, especially if the opening of the stricture be excentric, and the whalebone be consequently bent at an angle. To avoid this not infrequent accident, when the end of the dilator has reached the stricture, desist entirely from attempting to push or slide it along the whalebone, but slightly withdrawing the latter, grasp both it and the dilator, so that their lengths shall be closely applied, and move them forward by the same motion of the hand. You will find that guided by the lower extremity of the filiform, the dilator will readily advance and as its handle is lowered, its beak will enter the bladder. The presence of the instrument in the bladder will be made manifest by its freedom of motion, and the escape of urine by its side and through its channel, if the stylet be withdrawn. Now slowly turn the screw of the dilator, and separate the blades, alternately increasing and lessening the screw power, until a dilatation equal to 23 or 24 of the French scale is reached. Then lessening the tension three or four millimetres, slowly withdraw the blades and the whalebone from the urethra and meatus. There will generally be some bleeding, slight, and of no importance.

The Thompson instrument having been removed, next introduce the Gross dilator, which will readily pass through the now dilated urethra, and as before, separate the blades and over-distend the stricture. I generally push this dilatation up to 30 or 35, according to the resistance of the stricture, and the thickness of the penis. The greater

the diameter of the latter, as shown by Otis, the larger is the normal urethra; thus a penis three-and-a-half inches in circumference possesses usually a urethra 28 to 30 calibre. In withdrawing the instrument, reverse the screw and bring the blades to a calibre of 26 or 30, and avoid enlarging the meatus unless it has been morbidly contracted. It is well, then, to pass a series of Thompson's sounds, 26 to 30, in order to be certain that the stricture is well dilated, and that easy instrumentation is feasible. Then draw off the urine and tie a soft catheter of 24 or 25 calibre in the urethra to prevent the contact of the urine with the urethral walls. After the operation, the patient should be well wrapped up, and a hypodermic of one-sixth of a grain of morphia given, to be repeated if necessary. Severe symptoms rarely follow, if the after insertion of the soft catheter be made to prevent urethral fever and the septic effect of urine contact. On the third or fourth day, I remove the soft catheter and pass 26, 27 or 28 Thompson's sound, which is generally painless if gently done. The use of the sound is continued every other day, and by the expiration of eight or ten days, the patient is usually dismissed from treatment, having been first instructed and practised in the use of the sound, and furnished with 25, 26 and 27 for self-introduction.

The diet of the patient in the early days after operation should be from one-and-a-half to three quarts of milk, with a free use of lemonade for the thirst. This contraction seems incongruous, but it is satisfactory, sufficient and grateful to the patient.

Such, gentlemen, would be the treatment I prefer for a deep seated, tight, organic, idiopathic urethral stricture, when the circumstances of the case admit the time required for the procedure.

Again, urethral stricture, as you know, often gives rise to retention of urine, more or less prolonged, a condition demanding immediate relief. It is not then a question of dilating or curing the stricture at that time, but rather of passing a catheter into the bladder, drawing off the urine and thus relieving the man from torture. To do this, etherize your patient, pass the whalebone, as above directed, and over this carry into the bladder a small-sized tunneled silver catheter, such as were devised some years ago, by Professor Gouley, of New York. Of late I have somewhat varied this process, and use a whalebone filiform twenty-six inches in length. Over this I pass an ordinary flexible gum catheter, perforated at the point, which can easily be threaded on the whalebone, and passed into the bladder. If it should happen, that the stricture binds so tightly as to prevent its immediate passage, I am content to leave the filiform in position, the point of which has entered the bladder. Experience has repeatedly shown me that the urine will pass along it by capillary attraction, and that in a few hours the bladder will be entirely relieved. By its presence also, continuous dilatation is established, and in twenty-four, or forty-eight hours it becomes loose, however tight was the stricture when first introduced, and thus, the immediate symptoms of irritation and retention having passed, dilating processes may safely be resorted to.

In all cases of urethral instrumentation, even in so simple a matter as passing a sound or catheter in my office, I observe certain precautions: *first*, I always place the patient in the recumbent posture, to prevent faintness, or should that happen, to prevent him from falling and injuring himself; *secondly*, to prevent shock and irritation, I give him at the time a teaspoonful of paregoric; *thirdly*, to allay the burning sensation in the urethra, and to ward off vesical irritation, consequent upon the presence of a foreign body, for an instrument is a foreign body, I direct a cold douche to the head of the penis to be thus applied; let the patient guard his clothes with a napkin, and then retracting the prepuce, play a small stream of water, less than the thickness of a quill on the glans penis behind the corona, especially on its under surface. The effect of this on the terminal branches of the pudic nerves is magical. Urethral soreness, and vesical irritation disappear on the instant, and the patient departs in a condition of physical comfort, and mental satisfaction. Over the water basin in my office, I have a small faucet, and flexible pipe for this purpose, but a fountain syringe or a funnel affixed to the wall, with a small rubber pipe and a quill or catheter nozzle will answer equally as well.

Comparative dangers of urethral operations. No manipulation with the urethra, is entirely free from danger. I have known the insertion of a flexible acorn bougie No. 11 F. though painless at the time, to be followed in an hour by terrible shock, and eventually by an obstinate *epidydimitis*. Many years ago in a middle aged man, I divided at his clamorous request, a stricture of the meatus, which obstructed urination, and had months previously, been cut with

impunity. Sudden collapse, and death took place in seven or eight hours, possibly after urination. The most searching post-mortem examination failed to detect any cause of death. Incision of stricture of the anterior urethra is ordinarily harmless, and yet I have seen violent hæmorrhage follow, and death from septic poisoning. Gradual dilatation of soft and tractable strictures of the same part is usually well borne, but if the stricture be tight, it may prove tedious, and if resilient the result is apt to be temporary and ineffectual. Excessive irritability frequently forbids further dilating and repeated operation and demands incision of the stricture; and when this is done, it often happens that the previous irritability passes away.

As we have seen, the most frequent seat of annoying stricture, is at the bulbo-membranous region; how shall they be dealt with? shall they be cut by internal urethrotomy, or can they be dilated or over distended? I have endeavored to show you, and at all events have expressed my earnest conviction, that all deep non-traumatic strictures are permeable, that they can be traversed by a filiform, and by its guidance, they can be fully dilated and so kept, and that their method is applicable to every stricture, however firm its structure, however small and devious its calibre may be. In many years of private practice, and of public clinical demonstration, I have never met with a failure, nor with a death. Difficult cases I have had, and cases demanding great patience, but all ultimately yielded to the procedure I have described, a result which in great part I attribute to the blessed influences of antiseptic precautions. Under these circumstances I therefore contend that the processes we have studied together are as approximately safe as any urethral manipulations can be.

Now how is it with internal urethrotomy? Many, indeed almost all of the latest workers in genito-urinary diseases, admit a mortality for internal urethrotomy of certainly one or two per cent., and some as high as five per cent., a death rate which I think must be over estimated. But in any event, it appears that internal urethrotomy is a much more dangerous operation than it was at first considered, and this mortality rate is becoming greater as the voices of operators are being heard. As a consequence, there is a growing disposition, even among its ardent partisans to restrict and limit the applicability of the operation. I have myself seen death follow the blades of skilful and renowned urethrotomists, one of whom, and I have it from his own lips, was disposed to greatly limit if not entirely renounce the operation, of which he had been a most ardent advocate, on the very eve of his being sadly taken from us.

One fact in regard to this operation must always be borne in mind, and that is, that internal urethrotomy from behind forward, the most popular and safest form of division, demands a previous dilatation of the stricture, equal to the diameter of the cutting instrument.

It has been asserted and truly, that full dilatation cuts or lacerates a urethral induration, in nearly the same manner as internal urethrotomy, and that this is demonstrated by the endoscope. True, but with this important difference. If the dilatation be gently and slowly done, the stricturing tissues give way first and the traumatism is limited to the bands at fault. With the cutting blade, on the contrary the incision is not self limited; the tissues, diseased and healthy alike, are apt to be largely divided, the bleeding is often considerable, and as the admitted evil consequences show, septic poisoning follows in an appreciable percentage of cases.

Of the operation of *divulsion* introduced some years since by Mr. Holt I need say little. Here are the instruments. By sliding this tube over a central rod, two blades were forcibly separated, and the stricture, instantaneously burst. It was a rude process, mechanically successful, but often, very often followed by disastrous shock, and death. I remember, at one society meeting, the exhibition, in which I took my share, of seven or eight specimens of ruptured urethra, since which time I have refrained from the operation. I believe that it is deservedly a thing of the past.

I have not in these remarks referred to external urethrotomy or perineal section. You have seen me perform it in deep seated traumatic stricture, and in old iodiopathic strictures, attended with fistulæ, burrowing sinuses, and loss of perineal substance. Under these circumstances the external section, has been demanded by the attending complications rather than by the tightness of the stricture. But, of these I shall speak hereafter.

In advocating the dilatation of stricture, I am aware that it is often said that the process is incomplete, and not abreast with the latest procedures. Yet I maintain that with suitable care, this operation when properly performed, will accomplish as great, if not greater results, than the methods of internal

division. The secret of the procedure, is the intelligent use of rightly constructed fine capillary whalebones, which possess qualities not to be found in the gum or soft instruments, however minute. The dilating or distending process, is, I am convinced far more safe than the cutting operation, the death rate of which is steadily augmenting.

I have thus expressed to you my preferences in the treatment of stricture. At the same time I must add that within reasonable limits, every surgeon ought to practice those methods, in which he individually is most skilled, and which therefore presumably offer the best chances to his patient. The Japanese carpenter planes backwards, the American forwards; neither can adopt the method of the other, yet the handicraft of both is good.

The general rules which govern me in the treatment of organic stricture of the urethra, may be thus formularized:

First—Strictures of the meatus, and its immediate neighborhood, should be incised.

Second—Strictures of the pendulous urethra, not markedly annular, not resilient, and not irritable, may be gradually dilated by solid bougies. If annular, resilient, and irritable they should be treated by internal urethrotomy.

Third—Idiopathic strictures of large calibre, at or near the bulbo-membranous junction, should if possible be treated by gradual dilatation.

Fourth—At the same locality, tight strictures of small calibre, will still be found permeable to filiforms, and can be treated by whalebones, and dilators with greater safety than by internal urethrotomy.

Fifth—In traumatic strictures, wherever situated, those which follow violence or surgical cutting, internal or external, the continuity of the urethra is disturbed, and the apertures of its channel often do not correspond. These constitute the true impermeable stricture, and may require external urethrotomy, and perineal section.

BENZIN FOR BOILS.—Dr. F. W. Langdon uses benzin as an abortive agent in furunculosis, employing it in the following manner (*Lancet-Clinic*): At the first appearance of the little hard, painful papule, saturate a pledget of absorbent cotton with the remedy, and press it firmly, but not forcibly, over the swelling for about half a minute. Repeat this every hour or two for the first day; after that, two or three times a day, as the swelling and pain subside.

COMMUNICATIONS.

COCAINE POISONING.*

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At a meeting of the New York Neurological Society, November 5, 1886, Dr. Wm. A. Hammond, speaking of cocaine said, "He did not believe any dose that could be taken was dangerous."

In a paper by the writer, read before the Kings County Medical Society, February 13, 1887, on "Cocaine Dosage and Cocaine Addiction"—published in the *Lancet*, London, May 23, 1887—four deaths from single or repeated doses, and 46 less toxic cases were cited; and in a second paper, on "Cocaine Toxæmia", read before the American Association for the Cure of Inebriety, November 8, 1887—published in *La Tribune Medicale*, Paris, January 1, 1888—3 more deaths and 73 less lethal cases were noted—more than 125 in all—making the most extensive resumé, to that date, and impelling an editorial assertion from the *British Medical Journal*, that "if it were needful to produce more proof of the unsoundness of Dr. Hammond's statement, Dr. Mattison has effectually done this."

In discussing a paper on "Cocainism", read by myself before the D. C. Medical Society in Washington, December 24, 1890, Dr. Hammond confessed that he was *wrong* in his original statement, and said *he* had noted nearly fatal results from cocaine.

This paper will add proof upon proof as to its poisonous power, by citing more fatal, several nearly so, and many less toxic cases; it will place a proper estimate on the lethal strength of this—in some respects—peerless drug; and it will make pertinent the preamble and resolutions presented this Society.

In an extensive brochure, brought out last year, by Dumont of Berne, reference is made to the more than six score cases cited in my papers, and others are noted.

*Read before the N. Y. Medico-Legal Society, March 11, 1891.

We shall first detail the fatal cases instanced from June 1888, to March 1891, and then those less toxic.

Simes—Male, age 29, one drachm of a 20 per cent. solution injected in urethra, prior to urethrotomy. Instrument was scarcely removed, when patient made a foolish remark, facial muscles twitched, eyes staring, frothed at mouth, and face was congested, breathing embarrassed and a violent epileptiform convulsion, lasting several seconds, ensued. This, increasingly severe, continued several times a minute; the whole muscular system was involved, requiring force to keep him on table. Lung action first failed, then the heart irregular and slow, breathing more and more disturbed, face and entire body deeply congested, and twenty minutes from the first convulsion, patient was dead.

Abadie—Three-quarters of a syringe full of a 5 per cent. solution, was injected prior to operation on eye-lid. In ten minutes patient became unconscious, face cyanosed, and respiration ceased. After great effort with hypodermic ether injections, and artificial breathing, there was partial resuscitation, but patient died.

Zambianchi—Female, 4 grains, 225 millegram. injected near mammary cancer, as local anæsthetic; immediately epileptiform convulsions ensued, lasting fifteen minutes; transient rally under artificial respiration, then renewed convulsions, and in 5 minutes, death.

Montalti—Female, phthisical, one lung; 22 grains taken per mouth, by mistake. In 15 minutes, mental wandering, general coldness, increasing delirium, lips cyanotic, pallid and pulseless; became unconscious and "in short time" died.

University College Hospital, London—Male, 20 grains, in solution, intended for bladder injection, swallowed through mistake. Patient's condition not noted for nearly an hour; then found with opisthotonos and limb spasms. Soon after, died.

J. fur Z.—Female, 29 years, healthy, but very nervous, three injections, one-third gr. each, in gum, prior to teeth extraction. Operator withdrew from patient's chair to get water for rinsing mouth, and on return, found her motionless. Artificial respiration employed, but woman died.

Stewart—Male, 32 years, one and one-half drachms of four per cent. solution, injected prior to dilating urethra. Almost at once patient said, "I feel sick", pupils widely dilated, pulse weak and quick, became rigid and unconscious. After one minute partial recovery, but two minutes later fell back on table, rigid, unconscious and began to have violent general convulsions, almost throwing him to floor. Spasms were clonic, commencing in face and extending over whole body; deep cyanosis, quick, weak heart, and partial suspension of breathing; convulsions lasted three minutes, then gradual return to consciousness and able to leave in an hour.

Chetwood—Male, 25 years, one drachm, four per cent. solution injected, before cutting stricture. In three minutes patient nervous and excited, wildly violent, needing several men to restrain him; fought and shouted like a madman; had tetanic spasms, arm, leg and thorax muscles rigid and drawn; stiff-legged walk, would have tumbled without aid; under whiskey and hypodermic morphia, became quiet.

Finlay—Female, six teeth extracted, prior to each, one grain injected in gum. It caused extreme general pallor, coldness and insensibility; pulse 38, weak and intermittent; "heart almost exhausted"; respiration fell to 5 per minute, shallow, irregular and extremely dyspnœac; arm spasms; great pains in back of head and heart. Despite free stimulation, breathing almost ceased, then artificial respiration and external stimulating for forty-five minutes; heart and lung action improved, but spasms continued. Relapse; pulseless and seemingly dead; renewed forced breathing, and hypodermic injection, ether 30 min. in arm; treatment continued three hours; gradual recovery. Patient was five months pregnant; no untoward effect on child.

Golookoff—Female, 15 min. 2 per cent. solution injected. In five minutes, patient restless, pallid, shivering, quick pulse, "respiration soon ran up to 200 per minute" (?), and was labored; heart sounds heard two paces from patient; limb spasms, and great pain in heart and back.

Monat.—Male, 29. 7 min. of a 20 per cent. solution for local anæsthesia. In 3 minutes patient faint, gasping, cold, rigid extremities, face blue and pinched, pulse 120 and weak, speechless, and had repeated clonic spasms.

Booth.—Male. Ten grains injected in urethra, patient became excited and demented for 45 minutes.

Gooding.—Female. One-half grain injected in gum before tooth taking. Immediately wild staring look, very restless, quick gasping breath; in two minutes condition alarming, wildly delirious, tossing arms and legs, extremities cold to elbows and knees, breathing fast and irregular, pulse 120 and weak. Despite ether, ammonia, and brandy

by mouth and ether hypodermically, the collapse became profound, R. 60, P. 150, irregular and almost lost; rallies under continued stimulating, but after 3 hours was still delirious; mental disorder continued 7 hours and ended in sleep.

Neilson.—Male 29. 45 min. of 4 per cent. solution in prepuce as anæsthetic; patient became restless and excited, incoherent talk, pale, profuse sweat, feet cramps, pinched, ashen face, pulse 44 and small, breathing shallow.

Neilson.—Male, 33. 50 min. of 5 per cent. solution injected in scrotum. In one minute eyes fixed, pallid, sweat bath, running pulse and violent vomiting.

Randall.—Male, 6. Pledget, 5 min. of 4 per cent. solution, ½ grain in nose, caused inability to walk, wild delirium, with hallucinations, tremors, unconsciousness. Subsultus and convulsive movements lasting several hours.

Roux.—Female. 2½ centigrammes injected caused opisthotonos.

Roux.—Female. 3½ centigrammes, toxic symptoms, pallor, and cardiac distress.

Roux.—Female. 5½ centigrammes injected in temporal region for headache caused violent tetanoid spasms.

Earle.—Male, 65. Three-quarters of a grain injected as local anæsthetic caused great depression and other toxic symptoms, so that, despite nitro-glycerine injections with amyl inhalations and whiskey, *ad. lib.*, it was nearly an hour before patient was safe.

Wissinger.—Ten min. 15 per cent solution injected, caused pallor, profuse sweating, small, wiry, 140 pulse, respiration 40, great dyspnœa, and spasms of arms and legs.

River.—Male. Six drops 4 per cent. solution in each eye caused nausea, faintness, clammy sweat, and pulse of 40.

Schadle.—Male, 35. Repeated application of 4 per cent. solution on cotton to nostrils caused peculiar feeling about genitalia; cold and sensation as of penis absent; this effect repeated several times; remarkable action on genitalia; "cold and relaxed;" "gone feeling," noted towards end of treatment; this increased to semen loss and impotence, which lasted till cocaine ended, when virile power gradually returned.

Settier.—Male. 25 grammes of 4 per cent. solution in bladder: patient had daily injected for 7 months; this time caused vertigo, nausea, vomiting, "rocky" gait, cold sweat, thready, 103 pulse, indistinct speech, voice thick and shaky. Two relapses, 1½ minutes each, but quite recovered in eight hours.

B. M. J.—One and one-quarter grains injected for sciatica; soon restless and excited; pulse and breathing rapid; choreic movements; symptoms lasted 4 days; even then, patient restless and giddy.

B. M. J.—Boy, 13. 1½ grains injected as local anæsthetic. In 5 minutes patient pale, restless, and dyspnœac; pulse almost uncountable; nausea and epigastric pain. Patient recovered in 4 hours.

Garcin.—One-half drachm of 3 per cent. solution by bowel, caused hurried breathing, quick, weak pulse, and cold extremities. Recovered under stimulants.

Myrtle.—Female, 45. 3 drops of 3 per cent. solution in each eye. Immediate numbness of tongue and throat, faintness, intense palpitation and irregular heart action, extreme nausea and great flatulent distension of stomach and bowels, lasting one hour. Not $\frac{1}{11}$ grain in each eye.

Myrtle.—Eight minims, same solution as nasal injection, caused like, but less severe symptoms.

Stedman.—Twenty min. 5 per cent. solution—1 grain—as local anæsthetic in labial cancer. Soon became excited, pulse 160 and scarcely felt; respiration quick, short, irregular, panting; cold feet and clammy sweat; marked cyanosis. Recovered under hypodermic ether, 20 minims, every 7 minutes, 4 times. Symptoms ended in one and a half hours, except that pulse continued at 112.

Ficano.—Woman, 45. "Few drops" of a 5 per cent. solution in cavity of middle ear. Caused vertigo, nausea, vomiting and cramps, lasting several hours.

Brinton noted a case in which cocaine was injected after applying a tourniquet, but "as soon as it was loosened, the patient gave a gasp, face became livid, he struggled for breath, pulse was feeble and his condition quite alarming for some time."

Mitchell reported 5 cases. Both sexes, age from 20 to 50, in which a 4 to 10 per cent. solution used under skin, by spray and nasal pledget, caused vertigo, heart pain, dyspnœa, quick, weak pulse, syncope, general numbness and tremor, rigid limbs, and in one case complete paralysis, except tongue.

Hœnel.—Female, 19. One and one-half grs. injected in gum, two injections, prior to tooth extraction. Immediately after second injection patient became pallid and fell in convulsions. Nitrite of amyl, useless. Was cyanosed. Unconscious and in severe convulsions 5 hours. After convulsions unconsciousness continued 2 hours, pulse at first uncountable, then 176, resp. 44, axillary temperature 101; mouth, throat and nose

numb; suppression of urine 24 hours; sleepless 40 hours. Symptoms persisted 2 days.

Lobker observed five cases in which severe collapse followed the injection of small doses of a fresh 5 per cent. solution in gums prior to tooth drawing.

Judkin observed two cases with dangerous symptoms.

Buscarlet reported a case with toxic symptoms, after injecting in a hydrocele.

Witzel noted hallucinations of sight, hearing and taste after injection of one-half grain.

Meyer reported a child with headache and difficult speech from injection of two decigrammes.

Schilling.—Male. Age 20. Prior to lithotrity, one grain in bladder caused general rigidity and pulse of 180.

Ricci.—Male. Injected in thigh for sciatica, 22 grains by mistake. Caused restless excitement, facial spasms, choreic movements, quick action of heart and lungs, symptoms persistent 3 days. On 4th day symptoms recurred with increased intensity; patient unable to lie down on account of dyspnœa several nights; vertigo persisted for days.

Manley.—Male. 1½ oz. 4 per cent. solution, 4 grs. nearly, as anæsthetic before amputation; "He reeled over in a faint, became nearly pulseless, cold and deathly pale. After perhaps 20 minutes, reaction set in. * * * I felt earnestly thankful that a life was not lost through our experiment, for I was thoroughly frightened."

Wyeth has seen convulsive movements followed by opisthotonos. In another case decided convulsions after gradual injection of 30 min. of a 4 per cent solution in urethra.

Hallopeau noted a case in which an injection of 8 centi-grammes in the gum caused grave toxic symptoms.

Brush reported two cases of poisonous results.

Bissell.—Male. Age 29. 40 min. of a 6 per cent. solution injected before circumcision: "Serious constitutional symptoms;" nausea, vertigo, blindness and unable to walk for several hours.

Spivak.—Girl. Age 2 years. 1 gr. by suppository. One hour later child became restless, very excited, quick pulse and choreic movements.

Douthwaite.— Female. Accustomed to using injections to relieve sciatica. Took repeated doses, aggregating 16 grains; was found unconscious and in convulsions.

Slayter noted a case in which 15 min. of a 10 per cent. solution injected in toe, caused cyanosis and epileptiform convulsion.

Réclus and Wahl observed, in 4 cases, serious symptoms; pallor, nausea, cold sweats, quick pulse, dyspnœa, vertigo and syncope.

Johnston.—Female. Aged 20. After half gr. injection in toe for anæsthesia in ingrowing nail, patient was cyanotic, pulseless and collapsed.

Moizard.—Child. Aged 4. Given by mistake, four grains, caused extreme nervousness, severe chest cramps, muscular twitching, lasting 31 hours. Hallucinations and convulsions.

Wood cites a case in which 5 grains by mouth caused nausea, great sweating, incoherent speech, blindness, rapid intermittent pulse, cyanosis and suffocation.

Von Ploss.—Male. Would-be-suicide took 22 grains in beer, causing great belly pain, intense dyspnœa and vertigo, and urine suppression for 24 hours.

Cauldwell noted a case where 15 minutes after injection of 5 grains, there was unconsciousness and general convulsions.

In another case, headache, great vertigo, partial blindness, and temperature fell to 96.7.

Ingalls reported alarming symptoms from ½ grain applied to nasal membrane.

De Beck reported two cases, female. 4 per cent. solution to eye, caused clammy sweat, quick weak pulse, with gasping respiration, 6 per minute. Third case. 8 drops of a 5 per cent. solution caused such alarming symptoms, cataract operation had to be abandoned.

Chalmers Da Costa reported to me case of woman, age 22, in whose forehead he injected 10 min. of a 6 per cent. solution, causing shallow, rapid breathing, quick, weak pulse, great tremor, temperature 102, with delirium for several hours, and complete analgesia.

Here are more than 200 recorded cases. What of the unrecorded? Here is evidence too weighty to be rejected. Here is an oft-told lethal tale. What is the moral?

Before reaching conclusions, let us note the views of various observers touching the toxic power of cocaine, with such counsel as they have given to lessen the risk of untoward results that have robbed this peerless drug of much favor in the minds of many surgeons, and so deprived them of a most valued ally.

Réclus and Dumont lay large stress on three points—the quality of the drug, the quantity of the drug, and the site of injection. The former's brochure—brought out last year—is the most extensive yet presented on the action of cocaine as a local

surgical anæsthetic—his experience covering 700 operations. He thinks many ill results, near and remote, due to stale or spurious solutions. Dosage, too, is important; ½ to 2 grains he thinks the maximum, and that not less than 20 centigrammes would poison. In this last opinion he is wrong.

Réclus has a special method of dosing. He quadrangles the operative field, and plunges a long, fine needle in its entire length along each lateral outline. Then—and on this he much depends—as the piston is pushed down the needle is withdrawn, timing the combined movement so that when the needle tip emerges, the syringe is empty. This is done four times, quickly, and, by so doing, he thinks a large area is anæsthetized and the chance of a blood vessel injection brought to a minimum. He also thinks it of "priceless value" in weak heart and renal disorders.

Réclus is clearly an enthusiast on cocaine, and we think, although his experience has been such a happy one, it would be courting a large risk to place full reliance on his assertions. Judging by scores of well attested, he is wrong as to non-toxic effects from less than 12 to 20 centigrammes. His care as to slowness of injecting and gradual withdrawal is commendable.

Dujardin Beaumetz takes issue with him on one point—claiming it extra-hazardous in cardiac weakness; and, just here it may be well to recall a case noted by Knabe of Berlin—cited in my first paper—girl, aged eleven, who was given 4 to 12 drops of a 4 per cent. solution, by injection over the deltoid to remedy frequent fainting fits, she having cardiac debility sequeling scarlatina. In less than 40 seconds she took a deep breath, became deadly pale and dropped unconscious. One minute later she was dead.

As to its effect in renal disease, more than one writer has laid stress on the fact that as it is largely excreted by that organ, a crippled kidney would enhance the toxic risk.

As an opposite extreme to Réclus regarding dosage, Lauderer says, a maximum injection should be 12 to 15 millegrammes!

Dumont thinks a surgical subcutaneous injection should not exceed ½ to ¾ of a grain. Litten, Wölfer, Decker, Hænel, Orloff and Szumann share in this opinion.

Wölfer says injections about the head are more dangerous than on body or limbs, and that more than ½ gr. should not be injected. Dumont thinks there is less danger from cocaine in eye, nose and throat diseases.

Koller advises weaker solutions on body than on limbs, and says that nothing stronger than a 5 per cent. solution should be used in the nose; the effects being the same as from a 20 per cent. solution, only more time is needed to secure it.

Wyeth advises against cocaine under 10 or 12 years; and it is worth noting that the smallest fatal dose recorded was in a girl of twelve.

Regarding a danger from impure cocaine I believe this feature as a toxic factor is small. It has a killing power, *per se*, and the purer the product, the more decided this may be. Let no one think the pure drug harmless.

Dumont, Wyeth and J. M. Barton specially advise the use of Esmarch's bandage whenever cocaine is injected in the limbs for local anæsthesia. Barton says that when the operation is ended he loosens the bandage and immediately tightens it. This is repeated several times, every few minutes. In this way a small quantity enters the circulation at a time, and a large amount can be disposed of without harm. He states that prior to using this plan he often found toxic symptoms when bandage was loosened after fifteen minutes, whereas before no ill effects at all were noted. Leonard Corning adopts a similar device.

Of the fatal cases, 4 were by hypodermic injection, 2 by urethra, one each by gums, larynx, stomach, bowels and bladder, 2 unknown.

In 9 cases death followed collapse; 3 convulsions; 1 unknown.

The largest fatal dose, not injected, was 23 grains, by bowel. The next highest, 22 grains, by mouth. The largest non-fatal dose, not injected, was 22 grains, by mouth. The largest non-fatal dose injected was 19 grains, in leg. The smallest fatal dose, hypodermically, was 8 drops of a 4 per cent. solution, in arm.

COCAINE HAS KILLED IN SMALLER DOSE THAN MORPHINE.

Autopsies were held in cases of Simes, Montalti, and University College Hospital. In each there was marked congestion of brain, lungs, liver, and kidneys. Montalti thinks the drug kills by causing vaso-motor paralysis and consequent congestion.

CONCLUSIONS.

1. Cocaine may be toxic.
2. This effect is not rare.

3. There is a lethal dose of cocaine.
4. The lethal dose is uncertain.
5. Dangerous or deadly results may follow doses usually deemed safe.
6. Toxic effects may be sequence of doses large or small, in patients young or old, the feeble or the strong.
7. The danger, near and remote, is greatest when given under the skin.
8. Cardiac or renal weakness increase this risk.
9. Purity of drug will not exempt from ill-result.
10. Caution is needful under all conditions.
11. Réclus' method, Corning's device, or Esmarch's bandage should be used when injecting.
12. Nitrate of amyl, hypodermic morphia, hypodermic ether, alcohol, ammonia, and caffeine should be at command.

Brooklyn Avenue, Brooklyn.

POLYURIA IN EARLY INFANCY. *

BY GEORGE W. RACHEL, M. D.,

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Diabetes insipidus, or Polyuria during the first year of life, has, I think, not been observed before this—certain it is that I have not been able to find the record of a case while scanning the literature pretty carefully. It seems, therefore, quite appropriate to publish the few cases which I have had the opportunity to see. They are four in number, but in two only have I been able to see the patients through to recovery.

I—*Francis M.*, born November 22d, 1888, the first child of his mother, had been healthy during the first months of his life. He had been nursed until about two months old; but the secretion of milk gave out gradually, so that at last he had to be fed artificially entirely. His food consisted alternately of milk and barley-water, Soluble food and Nestle's and the child seemed to thrive well on this diet.

On April 18th, 1889, I was called to see him for an attack of purging and vomiting. I prescribed calomel and bismuth and ordered barley-water only to be given.

I was told the next day that the child seemed to feel better; towards evening of the 19th, he became very restless and this lasted till noon the following day (April 20th.) Slight convulsive twitchings were observed during the forenoon of that day and no urine was passed from 6 A. M. till 12.30 P. M. Some cough had set in and respiration had been growing very rapid. The mother had also noticed that the child looked somewhat puffed up in the face.

On examining the child that afternoon, I found some œdema of the face, hands and feet; his stomach was quite distended, partly tympanitic, partly dull on percussion; he had had no passage for about 18 hours. T. 101½° F., R. 35, P. 120, pretty weak.

On percussion there was some dulness below the left scapula, some rough breathing, almost bronchial in character and a little crepitation was heard on auscultation. On both sides posteriorly rough respiration and numerous râles were heard all over, especially over the lower portion of the chest; the heart did not show anything abnormal.

Taking all the symptoms in consideration I concluded that I had to deal with a congestion of the kidneys. The convulsive attack and the œdemata justified me in attributing the bronchial symptoms to the same cause: beginning uræmia. I ordered a laxative to be given and some urine to be collected and sent to me as soon as possible. It was not until noon of the following day (21st) that the mother succeeded in doing so; the child passed urine only four or five times from 6 A. M. on the 20th to 12 M. on the 21st. The first time at 12.30 P. M. on the 20th, as before stated.

To my great surprise the urine sent to me was as colorless as water; its specific gravity was between 1,000 and 1,001. Of course, it did not contain either albumen or sugar.

Dr. P. Guenster and Dr. J. H. Mennen were kind enough to examine the urine microscopically, the former at the laboratory of the "Post Graduate Medical School," the latter at Dr. Heitzmann's laboratory. Both gentlemen reported that they had found numerous micrococci, epidermal scales and mucous corpuscles, but no other abnormal elements.

Next morning's report was perfectly in accord with this unexpected result. The amount of urine passed by the child had increased considerably. He had to be changed very often and every time all his clothes and sheets were thoroughly soaked. The boy appeared to be unusually thirsty, too; while previously he had been a very

* Read before the Pædiatric Section of the New York Academy of Medicine on May 14, 1891.

good child, he now was very restless and wanted to drink constantly, although there was no fever.

As is well known, the treatment of diabetes insipidus or polyuria is a very unsatisfactory chapter of our therapeutics; a glance at the great number of drugs recommended for it is one of the best proofs of this fact. Külz† mentions more than thirty, of which I shall refer only to those best recommended. These are: belladonna, valerian, ergot, salicyl, phenol, arsenic, antipyrin, and nitric acid. One of the latest agents‡, recommended by Dr. Gaiffe, an assistant of Prof. Dujardin-Beaumetz, is phenacetine. This gentlemen has had encouraging results with it in two cases.

Both were patients having suffered for some length of time from nervous polyuria. Dr. Gaiffe succeeded in reducing the amount of urine passed daily from 6,500 grammes (216 ounces) to 4,225 grammes (140 ounces) in one case, and from 4,000 grammes (133 ounces) to 1,500 grammes (50 ounces) in the other. In the beginning he gave 0.5 grammes (8½ grains) in 24 hours, a dose which he gradually increased to 2.8 grammes (℥ss). He observed in both cases a partial return of the polyuria as soon as he discontinued the phenacetine. (The latter observation I have not been able to corroborate.)

All the various drugs enumerated above having proved unreliable, I did not hesitate to follow Dr. Gaiffe's recommendation. I prescribed 0.25 grammes (4 grains) of phenacetine, to be given four times a day. I was agreeably surprised to hear that gradually the amount of urine passed by the little one diminished, the polydipsia became very much less marked, and the specific gravity of the urine increased in proportion. On April 26th, it was 1,005; on April 29th, 1,007; on May 1st, 1,008, and on May 4th, 1,012; I discontinued the phenacetine and the child appeared to be well. On May 19th the specific gravity of the child's urine was 1,015.

The boy had regained what he had lost in the meanwhile and looked well; his health remained good up to the end of June. Then he had a very severe attack of gastro-intestinal catarrh, from which he recovered only gradually. On July 20th, pneumonia on the right side supervened, which carried him off within four days. There never was anything abnormal observed in regard to his urine during his last illness. No autopsy.

† Gerhardt's *H. d. Kinderkr.* 3, Vol. I, pp. 285 to 288.

‡ *Bull. gen. de Therapeutique*, 1888, p. 71.

The second case came under my observation last summer while I was substituting for Prof. Dr. A. Seibert, in the New York Polyclinic.

II.—*Louise G.*, 10 months old, had an obstinate gastro-intestinal catarrh during June last; while this was slowly improving, numerous furuncles appeared about the head, trunk, and lower extremities. While these were breaking and healing, others formed on the arms, etc. This extensive furunculosis led me to suspect sugar in the urine, since I have been led to diagnosticate diabetes mellitus three times by examining the urine of adults, suffering from general furunculosis.

On questioning the child's mother, I obtained the information that the little patient wanted to drink almost continuously, that she passed water very frequently, and that every time she was "wet through and through." I gave her instructions how to collect some urine which she was to bring with her the next time.

On July 25th, I received the first sample and examined it before the class. The urine was almost colorless; instead of a yellowish, it had a slightly greenish hue, however. To my great surprise I found the specific gravity to be extremely low; its surface was just sufficiently below the mark to show that it was somewhat more than 1,000, but it did not reach the next line of division. It will be readily understood that it did not contain either sugar or albumen.

The child now received the phenacetine treatment for its polyuria, 0.25 grammes (4 grains), being given three times daily. On July 30th, the specific gravity of the urine had risen to 1,004, its color was of a light yellow, and the child had not wetted itself as frequently. Under continued treatment the specific gravity gradually rose and the urine assumed its natural color.

The formation of furuncles also ceased and by the middle of August only two of them remained, one over the right temple and the other on the left arm, about the wrist. The specific gravity when last examined on the 15th day of August, was 1010. It is to be regretted that I was not able to follow the case up any further since the mother did not show up after this at the clinic.

The history of my third case is less satisfactory still.

III.—*Fred. I.*, 4 months old, was treated for gastro-intestinal catarrh like the former patient at the N. Y. Polyclinic, and about the same time, *i.e.* during June of last year. This lasted a few weeks. While the child was recovering from it, furunculosis also set

in, although it was not as severe as in the other case. The child's urine which was brought to me on July 25th, had hardly any color, and its specific gravity was found to be 1002. The child was given phenacetine, but unhappily we had no further opportunity to examine his urine. Diarrhœa soon set in again and the mother reported that she was unable to collect any of the urine, since it was always passed at the same time with the fæces. She stayed away about a week afterward and the case was lost to us.

The peculiar coincidence of two rare cases presenting at the same time, is not unusual, nor is their causeless staying away from a clinic.

IV.—*John W.*, 11 months old, was brought to my office on October 12th last. The mother reported that since several days the child, whose history contained nothing but a protracted icterus during the first five weeks of his life, had become very restless, crying almost incessantly, and that he wanted to drink almost continually. He had become considerably emaciated during the last month or so, since which time his illness seemed to have developed.

A physical examination of the child failed to elicit anything to account for the boy's condition. His liver was somewhat enlarged and seemed to be painful on slight pressure, but otherwise everything seemed to be normal. No fever.

I, therefore, instructed the mother to procure some of his urine, although she did not think that the child passed it oftener than usual. But that much she admitted that the quantity of urine passed every time seemed to be larger than formerly.

In order to appease the child without giving him too much to drink, she had given him a piece of sugar in a rag to suckle. This I forbid her to do and allowed her to give the child a teaspoonful of brandy and water or cold tea occasionally between the nursings. The latter she was to do every two hours. Placebo.

She did not appear until the 16th with a sample of the child's urine, which was almost colorless and had a specific gravity ranging between 1002 and 1003. No sugar and no albumen was present. I gave the child 0.25 grammes (4 grains) of phenacetine four times a day. On October 20th the specific gravity of the urine was still 1003 only, although it seemed to have somewhat more color. On October 26th the mother stated that the child was better, cried less and did not wet its clothes as thoroughly as before. But it drank just as eagerly as before. This urine weighed 1006 and had a well-pronounced amber color. Both, the bismuth and the indigo test failed to show any sugar; no albumen. On October 29th the specific gravity was 1010. On November 2d it was again down to 1005. I now increased the dose of phenacetine to 0.35 grammes (6 grains) four times daily. The specific gravity went up steadily after this; it was 1010 on November 5th, and 1012 on November 10th. There it remained and on the 15th of November when I examined it last, it was still at that figure. I now stopped the drug and the child has been well ever since.

On December 2d the specific gravity was 1013, a figure which may be considered almost normal in children who live exclusively on liquid diet.

The most interesting point in connection with polyuria is its *etiology*. In connection with this I may be permitted to refer to the well established fact of its heredity.

It was first shown conclusively by Weil that heredity must be considered a potent etiological factor in diabetes insipidus.

Weil reported the history of a certain family in which a hereditary liability to polyuria was to be traced through four generations. Among 93 members of this family as many as 23 (of which 12 were males and 11 females) suffered from diabetes insipidus.

In connection with the first case I was able to elicit the following facts in regard to heredity.

The mother of the first mentioned infant had passed urine very frequently and in large quantities up to the tenth year of her life and this constantly night and day. She was not sent to school for this reason until after she had completed her tenth year. At that time the polyuria ceased without treatment and without any visible cause. Since then she has been well, except a vaginal discharge which ceased after her confinement. She was at that time 24 years old. No other member of her family has been subject to polyuria as far as she knows—which does, of course, not at all preclude the possibility that such may have been the case.

In the other cases, I was unable to learn anything in regard to a possible hereditary taint.

The feature common to the first three cases is that in every one of them polyuria appeared after prolonged gastro-intestinal trouble. While in one œdematous effusions existed for a short time, the other two were subject to quite extensive furunculosis for many weeks; it was this condition which

led me to examine the urine, as I have stated. Nothing of the kind existed in the last case.

To consider the furunculosis as a manifestation of the tendency to necrotic and gangrenous inflammations, such as seen frequently in diabetes mellitus would, I think, be too rash, for it is, to my knowledge, not supposed to be a feature of diabetes insipidus.

It is not improbable that it was due to the absorption of some septic material from the diseased intestinal mucous membrane. In this regard, it is in place to state that in my experience as well as in that of others, infantile diarrhœa was followed in an exceptional manner by cutaneous affections during that summer.

As to the action and efficacy of the phenacetine, I have nothing to suggest. It can only be explained through its well-known influence on nerves and nerve-centers, polyuria being considered by most authors a nervous affection.

THE TOXIC EFFECT OF TOBACCO VAPOR, WITH A REPORT OF CASES.*

BY W. CARROLL CHAPMAN, M. D.,
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As the grand aim of medicine is to alleviate distress, the careful recording and description of rare diseases as well as the unusual manifestations of ordinary disease, would seem to be two of the most important features of professional literature. Another factor, and probably of no less importance than the first two, is the accuracy in diagnosis. The three cases I desire to report have been recorded at length and with care, and will be described with as much brevity as is consistent with the facts and my ability to outline the symptoms clearly. As to the diagnosis, while I feel that further and deeper research is necessary to make it positive, it is well supported by the physical and functional signs, associated with the fact that each patient had been daily subjected to the inhalation and absorption of fumes emanating from tobacco, and further, that these symptoms, when not so severe, would appear or disappear, according as the patient received the exhalation from tobacco into the system or not. Then I have been unable to find the record of any disease to which this train of symptoms can be applied with precision. On the other hand a grave defect, bearing on the diagnosis, is readily admitted; namely the failure to make a chemical examination of the excretions. This error is due, principally, to having allowed myself to become so thoroughly convinced of the correctness of my diagnosis, which was concurred in by the consulting physician, as to fail to realize at that time the value of a chemical examination in confirming it, especially to the medical profession.

In treating of the toxic effect of tobacco vapor it is the intention of the writer to confine himself closely to the graver and more dangerous cases due to its inhalation or absorption, or both. The obscure effects of tobacco-smoking and the inhalations from cigarettes will not be considered.

Tobacco stemmeries have a process by which they get dry tobacco in a proper condition for stemming. This is done by means of a number of reservoirs containing steam generated from pure water, which is turned on the tobacco previously arranged, so as to receive and retain the necessary amount of moisture. When ready, this is carried to the men who do the stemming. The carriers are usually children from nine to fifteen years of age. Knowning then that the vapor of tobacco contains numerous basic substances of the picoline series, and several fatty acids, and probably nicotine and nicotianine, it can be readily seen how the systems of these children become saturated with these poisons.

Usually their presence is manifested during the first day or two by violent vomiting, retching, purging, and often a state of collapse, after which the system may become inured to them. Occasionally we find one whose constitution even by contact and time, although there is a certain amount of tolerence, refuses to receive them kindly, and emaciation begins, attended sooner or later by the following symptoms:

CASE I.—I was called to see Willie C., aged ten years, April 3, 1889. Found him suffering extreme pain in the abdominal region, with the intensity centering at the umbilicus. Temperature, under the tongue, 100°; pulse 108, small, wiry and irregular; respiration 20 to 22, but irregular—several short, shallow respirations followed by one deep and gasping. Tongue glairy, red appearance and pointed. Patient constipated for the last several days; abdomen flat or rather depressed; urine scanty and slightly colored; skin dry, as were the hands and feet—the latter being a little cold. When

*Read before the Mississippi Valley Medical Association in October, 1891.

near the patient the odor of tobacco was so pronounced that I made inquiry regarding it, and learned that he worked in a tobacco stemmery, and further, that he had slight attacks of similar pains at several different times, except of milder form. Though the working clothes had been displaced by his night apparel, the odor was strong and led me to suspect tobacco as a cause. Not being able to make a satisfactory diagnosis at the time, I decided to use palliative treatment and study the disease further. Gave a hypodermic injection of morphia and atropia; ordered a large dose of castor oil to be followed by bismuth and quinia. After the patient had been given some relief I instructed the nurse to use turpentine stupes freely should the pain return.

The next morning (April 4th) I found the patient suffering pretty much in the same way as on the evening previous—more nervous and tossing from side to side. The morphia and atropia gave relief for several hours, when the use of turpentine stupes was begun and continued until the patient became so restless they could not be applied. The oil had failed to move the bowels. Immediately gave morphia and atropia hypodermically. Temperature 100°; pulse 112; respiration 22, and of the same character as on the evening previous; pupils contracted, expression marked for anxiety. He described the pains as sickening. Previous to the time he started to work in tobacco, he was plump, robust and healthy, but for the last several weeks had been decreasing in flesh and weight. Ordered another dose of oil and told the nurse to apply a sinapism of mustard to the abdomen, should the pains return before I saw him in the evening.

5 P. M.—Patient had just begun to suffer intensely when I arrived. Had been quiet through the day but slept none. Oil still refused to cause the bowels to act. Ordered it by the rectum with a pint of tepid water. Gave morphia and atropia and ordered the enema repeated in case it failed to act in one hour.

April 5th.—Patient had rested better the night before, but slept comparatively none. Pulse, temperature and respiration about the same as on the day previous. The enema had caused a scanty action upon the bowels —very dark, with greenish tinge to the liquid. No tenderness of the abdomen on pressure, except at umbilicus; pain still intense. Repeated the morpia and atropia. Although catharsis and diaphoresis were absent, I felt convinced that tobacco was the cause, and decided to push cathartic remedies to thorough effect and stimulate the skin to action. Believing there was no intussusception, I prescribed a full dose of calomel, podophyllin, extract belladonna and soda. Ordered the clothing and bedclothing changed, and the patient sponged with tepid water and a little ammonia, followed by mild rubbing; this to be repeated in the evening, at which time I administered morphia and atropia again.

April 6th.—Patient rested better through the night than at any time previous. Bowels acted two or three times; fæces black, with green tinge. Pain dull, sickening character; no material change in temperature, pulse or respiration. Liquid food with whiskey. Continued baths; prescribed morphia, belladonna, quinia and nux vomica.

April 7th, 8th, 9th, 10th, 11th, 12th and 13th.—Patient continued pretty much the same, temperature going to 101°, with a slight advance in pulse-rate on one day. No change in treatment, except to add pepsin and hydrochloric acid. Kept the bowels open by enema.

April 14th.—Abdomen tympanitic, with tenderness; nausea and vomiting. Patient complained that the capsules made him vomit; discontinued them. Pain intense, same character as before.

April 15th.—Was sent for to relieve the pain. Administered morphia and atropia hypodermically; prescribed deodorized tincture of opium, and ordered turpentine stupes over the abdomen.

April 16th.—No change.

April 17th, A. M.—Temperature 101,5°; pulse 120; respiration labored. Digitalis, whiskey, atropia. P. M., temperature 102°, pulse 130. Continued same.

April 18th, A. M.—Temperature 100°; pulse 108; respiration improved. Slept after 1 A. M. P. M., same as morning. Rested pretty well. Continued whiskey and digitalis.

April 19th.—Temperature 99°; pulse 100; respiration 18, more regular. Other symptoms improved.

Improvement was gradual from this on.

April 22d.—Facial neuralgia manifested itself and lasted several days. Gave morphia and atropia and prescribed iron, quinia and strychnia. Dismissed the case on April 29th, after three-and-a-half weeks of illness, with instructions for him never to work in tobacco again. He has obeyed, and now (two-and-a-half years later) the boy is inclined to be fleshy.

Case II.—Lizzie M——, aged twelve years. Worked in tobacco stemmery. Called

in on July 19, 1889. Patient was taken sick three days before with pains in the abdomen. The mother had treated her with castor oil, laudanum and hot applications, with very little relief. These remedies had answered the purpose on two or three other occasions within the last several weeks, but the pains had never been so violent. On the evening of the above date I found her condition as follows: Anæmic; violent pain in the abdomen with intensity centering at umbilicus; abdomen flat with only slight tenderness on pressure; constipated; urine, scanty and slightly colored; tongue, red and pointed; temperature in axilla, 100.5°; pulse 120, small and wiry and irregular; skin, dry; pupils, contracted; respiration, 24; four or five short and shallow followed by one deep and gasping. The odor of tobacco was present. Gave morphia and atropia hypodermically. Prescribed a cathartic, also digitalis, and ordered teaspoonful of whiskey every two hours.

July 20th, A. M.—Patient had rested the early part of the night; small action from the bowels, dark, greenish appearance. Pains have been severe for last hour or two; pulse, temperature and respiration same as evening before. Continued same treatment; gave morphia and atropia and ordered an enema. P. M.—Bowels had moved twice; fæces dark, greenish appearance. Repeated morphia and atropia and ordered patient sponged with tepid water and ammonia and rubbed dry. Liquid food.

July 21st, A. M.—Pulse, 130; temperature, 101.5°; respiration, 22 and more labored; abdomen, slightly tympanitic. Prescribed aromatic spirits of ammonia with the digitalis. Gave morphia, quinia and strychnia in capsules, increased the whiskey. P. M.—Condition same.

July 22d and 23d.—No change except abdomen little more tympanitic, and vomiting at times.

July 24th, A. M.—Vomiting, cannot retain the medicine in the stomach; pulse, 140; temperature, 100°; respiration so irregular can't be estimated positively. Whiskey, hypodermically. P. M.—No perceptible change unless for worse.

July 25th.—Patient sinking; pulse, fluttering; respiration, 10 and gasping. Died in the afternoon by asphyxia, after an illness of nine days.

I requested the privilege of making a *post-mortem* but was refused.

Case 3. Johnnie C——, nine years old. Called in on July 14, 1890. Patient suffering intense pain in abdomen, especially at umbilicus. Had a few slight pains a few days before, but stopped his work in tobacco stemmery and came home. The pains ceased without treatment. A day or two later resumed his work until the above date. Emaciated; abdomen, flat; very slight pain on pressure; temperature, 100°; pulse, 100, small, wiry; respiration, 22 and shallow; pupils somewhat contracted; tongue, bright red; constipated. Gave morphia and atropia hypodermically; castor-oil by mouth; prescribed tincture of opium deodorized to be given when the effects of the morphia began to wear off, provided the oil acted.

July 15th.—Patient rested very well through the night. Oil moved the bowels two or three times; dark, greenish actions; temperature, 99°; pulse, 90; respiration, 20 and easier. Diminished the opium with instructions to leave it off if pain ceased. Prescribed pepsin, pancreatin, bismuth and hydrochloric acid.

July 16th.—Left opium off and pains returned. Temperature, 99.5°; pulse, 96; respiration, 22. Began opium immediately. Ordered him sponged with tepid water and ammonia.

July 17th.—Patient improved; pulse, 84; temperature, 98.4°; respiration, easy. Prescribed iron, quinia and strychinia; improvement continued. Facial neuralgia developed on 19th instant and lasted two or three days.

I desire to state just here that, during the interval between cases 2 and 3, reported above, I saw two patients, who worked in tobacco, with symptoms similar to those reported, but greatly modified. To the first of these I gave castor oil, followed by pepsin, pancreatin, bismuth and muriatic acid, with instructions to stop work in tobacco. He followed my advice and has not suffered in that way since. To the second I merely gave castor oil with same instructions as to the first. He followed them for a few months, then returned to work in tobacco, which he kept up for six weeks when he came to me with the same symptoms as at first. Yielded to simple treatment, but slowly. Since case 3, I have had several mild cases. I invariably warn them to stop work in tobacco, especially where it is steamed. I believe all would have been well with the three cases reported had they stopped work in tobacco at the first warning pains.

Attention is called to two factors noticeable in all the cases, namely: The emaciation and the time each one had followed the occupation, that is, from six weeks to three

months. The three cases reported had not suffered from the vomiting and retching usually attendant upon young tobacco workers the first day or two. In the other or milder cases, I neglected to inquire regarding that point.

This paper would be incomplete without a review of these cases for the purpose of considering the relation between this cause and result.

Emaciation is one of the symptoms noticeable in persons suffering from the presence of tobacco vapor in their systems. Dr. Ydan Pouchkine, of Russia, has recently reported an interesting series of experiments relative to the influence of tobacco upon the digestive functions of the stomach. He concludes that the free hydrochloric acid of the gastric juice is diminished under the influence of tobacco and the motility of the stomach is increased. This would interfere with the digestion of the food not only by lessening the power of the gastric fluid, but by hastening the matter to be digested into the duodenum before it has been subjected to the influence of the gastric juice for a sufficient length of time. Consequently and in proportion as digestion is imperfect, would secretion and assimilation be deficient and emaciation result.

As to the particular ingredient or ingredients causing the symptoms reported, chemical examination would furnish the most weighty evidence. Having neglected that in these cases, I can only console myself by awaiting an opportunity to make that test at some future period. Our knowledge, though, of the substances entering into the composition of tobacco, and their separate and collective properties and actions upon the body furnish us material worthy of consideration.

In regard to nicotine, which has been suggested as a cause, I must say that I do not believe it for a number of reasons. In the first place, nicotine is not readily separated from tobacco unless treated by a fluid or vapor containing alkaline properties, potassa for instance. The vapor used at the stemmeries, I learned upon inquiry, was from water only.

Again, had nicotine been the cause, the effect would likely not have been so delayed and vomiting and purging have been present.

As to nicotianine, indications point strongly to its being a cause. According to Landerer it occurs only in dried tobacco-leaves, and has the odor of that plant, a point strongly in its favor, and that odor was so distinct in every case I have seen. It would seem, further, that the basic substances and fatty acids were causative agents, because authors have proved by physiological experiments that these cause contraction of the pupil, dyspnœa, abdominal pains, convulsions and death.

Why these symptoms have been so delayed in these cases, instead of the poisons manifesting themselves the first day or two, by retching, vomiting, etc., as is most generally the case, I am at a loss to say, and would suggest, by way of excuse, a cumulative effect.

The toxic effect of tobacco vapor and its treatment is a subject worthy of more consideration than the profession has accorded to it in the past, and I hope that the next few years, aided by diligent and careful investigation, will place the matter in a more intelligent light.

Society Reports.

SURGICAL ASSOCIATION.

THURSDAY.—EXECUTIVE SESSION.

The officers for ensuing year are as follows:

President.—Dr. Phineas S. Conner, Cincinnati.

1st Vice-President.—Dr. L. McLane Tiffany, Baltimore.

2d Vice-President.—Dr. Levi C. Lane, San Francisco, Cal.

Secretary.—Dr. J. R. Weist, Richmond, Ind.

Recorder.—Dr. J. Ewing Mears, Philadelphia.

Treasurer.—Dr. John B. Roberts, Philadelphia.

Member of Council.—Dr. Claudius H. Martin, Mobile.

The committee recommended the following resolution, which was adopted:

Resolved, That the Association hereafter hold each triennial meeting at Washington, and that other annual meetings be held at such time and place as the Association may name.

It was decided to hold the next meeting at Boston, in June, 1892.

The following were elected to membership:

Dr. J. S. Wright, Brooklyn, N. Y.

Dr. E. W. Walker, Cincinnati, Ohio.

Dr. George R. Fowler, Brooklyn, N. Y.

The following honorary members were elected:

Mr. John Chiene, Edinburgh.
Mr. Reginald Harrison, London.
Mrs. Thomas Bryant, London.
Mr. Arthur Edward Durham, London.

THURSDAY SESSION.

RECURRENCE OF CANCER OF THE BREAST, BY DR. FREDERICK S. DENNIS, M. D., OF NEW YORK.

Only those cases were included in which a microscopical examination of the tumor has been made. The necessity of an investigation of carcinoma of the breast is shown by the fact that in England alone 7000 deaths occur annually from carcinoma, and a large proportion of these are cases of the breast. It has been demonstrated that cancer is a disease which is slowly increasing in civilized nations. A study of the subject shows us that there are 75 per cent. of recurrences. These include cases of incomplete operations, *i. e.* when axillas have not been opened. In the primary growth at the beginning, the neoplasm is of local origin. Early and complete removal of the growth relieves the local disease, but the operation does not relieve the predisposition, or susceptibility, or capability for the recurrence of the disease. It is possible that the capability is limited to certain extents.

First, the recurrence of carcinoma of the breast is influenced by the period of time from the appearance of the growth to the date of the operation. In the cases of the author in which the cure had continued for three years or more the tumors were removed on an average, six months from the date of their first recognition in the breast. In all the cases of permanent cure, the axillary glands were not invaded.

Second, recurrence is influenced, by the extent to which infiltration has taken place by any one or all of the three well recognized ways of dissemination. If, when the tumor has existed long enough to show extension in these directions, the growth has been of long duration.

Third, recurrence is influenced by the radical character of the operation itself. Complete removal of the breast is essential. The method of Mr. Stiles, of Edinburgh, by which the tumor after removal is treated with dilute nitric acid in order to show whether or not the incisions have been made in healthy structures and all the diseased structure has been removed, was described. The reported mortality of the operation is high, but in the author's 71 cases there had been but one death and that was from continued bleeding in hæmophilia. In operation not only the breast but the axillary glands were removed in most cases.

Fourth. Recurrence is influenced by the histological character of the carinoma itself. Where the structure differs slightly from the normal, the clinical history is favorable. In none of these cases was there recurrence. Where there is great departure from the normal type, the clinical history is unfavorable. The more embryonic the structure, the greater the chance of recurrence.

Fifth. The recurrence is influenced by the simultaneousness in both breasts. This occurs in five per cent of the cases. These patients are very liable to these recurrences.

Sixth. Recurrence is influenced by the personal factor of the individual, such as age, sex, marriage, fecundity, sterility, pregnancy, traumatism, heredity, menstruation, metasosis, mental condition, locality, etc.

Seventy-one cases of carcinoma of the breast, which had been operated on, were referred to. In one there had been death from hæmophilia. In nearly all the axilla was opened. The operation consisted of excision of the entire breast, with all contiguous skin, the para and peri mammary, fatty areolin tissue, the pectoral glands, the pectoral fascia and also removal of the axillary glands and fatty axillary tissue. In some cases the supra clavicular glands were removed, and in one case excision of the ribs was done. The per centage of permanent cures amounted to 30 per cent. The author held that with early and radical operation, recurrence of carcinoma of the breast will be comparatively scarce.

DISCUSSION.

Mr. Thomas Bryant, London, believed firmly in the local origin of carcinoma although we must admit that there may be a predisposition on the part of the patient to the development of the disease. The disease should be treated at an early period, and this brings in the question of diagnosis. Many cases do not come under observation until the disease is well advanced, because the patient imagines that a disease unassociated with pain cannot be cancer. Where induration appears in a breast during the period of functional activity there may be some hesitation in the diagnosis, but in some thirty cases of this kind he had recommended an immediate operation, and in all the cases the disease was shown to be malignant. In none has recurrence taken place. When

the disease has advanced somewhat further with dimpling and puckering of the skin and some immobility we may get a good result by making a thorough operation. He had had some cases without recurrence for from five to twenty years. In the more advanced cases the surgeon should limit his operations to those in which there was a reasonable prospect of removing all the diseased structure. He does not remove the axillary glands in every case. If the glands be enlarged or the disease extend upward in that direction he removes the glands thoroughly. When the disease is quite local and there is no evidence of axillary involvement, the axilla is not opened. In the atrophic form of cancer he thought it better not to interfere unless the tumor was giving rise to great inconvenience. Operation in these cases is often followed by a more rapid form of growth. Again in the form of cancer where the lymphatics can be traced distinctly, and the breast has a brawny feel—the lymphatic form of cancer—the surgeon does no good by interference.

Sir William McCormac, London, thought that the axilla should be opened in operations for carcinoma of the breast, for two reasons, viz: An examination of 117 cases of cancer of the breast showed that in all but two there was axillary involvement, and second, in ninety per cent of the recurrences the disease appears in the axilla.

Dr. Lewis S. Pilcher, Brooklyn, thought that the term "recurrence" was not applicable to many of these cases, and that in many the disease was simply a continuance of the former growth. If the case goes one year without the appearance of return of the disease, it may be considered that the disease has been removed, and if it appear later it can be regarded as a recurrence, a renewed or new attack of cancer. In every case of cancer there is a predisposition to the disease, and we should search for some agent to counteract this constitutional predisposition which we can use in addition to operative measures. Arsenic has for many years been used for this purpose. Dr. Wright, of Brooklyn, has suggested the use of carbonate of lime for the same purpose.

Dr. L. McLane Tiffany, Baltimore, did not think we could set any limit to the time of which recurrence might take place. He had had the disease return eight years after the operation. He was a firm believer in the local origin of cancer. The date at which this disease is recognized varies much. In some the disease comes before the surgeon shortly after its commencement, while in others the tumor has reached considerable size. The time at which the disease is discovered by the patient bears no relation to the time of its commencement. Too much stress had not been laid on the necessity of thorough operation. In only two cases out 80 operations for cancer of the breast had he found the axillary glands not enlarged. The pectoral fascia should be removed, and at times the portions of the muscles should be cut away.

Dr. Kingston, Montreal, believed that cancer was essentially a local disease. If we believe this, operation should be done at as early a date as possible. The glands should be removed not only from the axilla, but from its neighborhood if they are enlarged, but this should not form a necessary part of the first operation. Such a procedure adds greatly to the discomfort and to the danger. Where there is the slightest suspicion of involvement of the glands, they should be removed. If there should be recurrence the operation should be repeated as often as circumstances seem to warrant.

Dr. Joseph Ransohoff, Cincinnati, reported thirty cases of removal of the breast for cancer, without a death. He thought that the danger of the operation was not materially increased by opening the axilla.

Dr. C. B. Nancrede, Ann Arbor, said with reference to the three year limit that this had been proven to exclude 98 per cent. of the recurrences. It is impossible to tell whether or not, the axillary glands are involved without opening the axilla. Unless this is done the majority of the cases will be left unbenefited. He advised that the axilla be opened first, and if the glands could not be removed, to close the wound and not remove the breast.

Dr. J. R. Weist, Richmond, Ind., had operated 55 times for cancer of the breast and makes it a rule to open the axilla in every case.

Dr. Geo. W. Gay, Boston, felt that there was no such thing as a local origin of cancer as we have the local origin of a fatty tumor. When it can be shown that a cancer taken out, will not return just as a fatty tumor when removed does not return, then we can prove the local origin of carcinoma.

Dr. Edward M. Moore, Rochester, always operates in as thorough a manner as possible. He always opens the axilla and did not think that it added to the risks of the operation. He did not agree with Mr. Bryant in regard to the atrophic cases in old individuals. In these, he recommended

operations considering recurrence very improbable. He reported one case living 17 years after operation, and now 79 years of age.

A CASE OF DIFFUSE FIBROMA, WITH A TENDENCY TO INTRA-CANILICULAR GROWTH OF BOTH BREASTS, BY DR. C. B. PORTER, OF BOSTON, MASS.

Mrs. M., age 37 years, resident of Nova Scotia, was admitted to the Massachusetts General Hospital. Has had two children, the youngest ten years old. Three years ago she discovered a hard lump in the right breast which gradually increased in size. Three months later the right breast commenced to enlarge. The breasts continued to slowly enlarge until three months ago, when a rapid increase took place, and the breasts soon became burdensome by their size and weight. On examination she was found to be pale, emaciated, and with ovarian fæces. Right breast, largest circumference 38 inches; length from chest wall to nipple, 17 inches; circumference of base, 23 inches. Left breast, largest circumference 28 inches; length from chest wall to nipple, 14 inches; circumference at base, 23 inches. Throughout both breasts were felt movable, hardened masses of irregular outline varying in size from an orange to a closed fist.

It was decided to remove the left breast first. The breast was transfixed at the base with two skewers, and constricted below this with a tightly drawn rubber tourniquet. The breast was then removed, and but little blood lost. Three weeks later the right breast was removed. Twenty days after the second operation the patient was permitted to leave the hospital to visit friends, but instead she returned to her home, requiring a long sea journey. A week later she developed erysipelas. This had much improved in four days when she suddenly aborted a month fœtus.

The weight of the right breast after removal was 43 pounds, and that of the left 17 pounds, a total of 60 pounds.

A resumé of three reported cases was added.

Dr. J. M. Barton, of Philadelphia, reported a similar case, on which he had operated, and in which one breast was involved. Adjourned Thursday.

FRIDAY MORNING.

The committee to which was referred the suggestion in the President's address offered the following resolution, which was adopted:

Resolved, That the President appoint a committee with authority to confer with the friends and admirers of Professor S. D. Gross, and with the profession at large, for the initiation of a movement on the part of the Association, having for its object the erection of a monument to Dr. Gross in the city of Washington.

As the matter is an important one, the President stated that he would announce the committee in a few days.

TREATMENT OF FRACTURES INVOLVING THE ELBOW JOINT, BY DR. LEWIS A. STIMSON, NEW YORK.

The special interest of the subject arises from the frequency with which fractures of the lower end of the humerus are followed by more or less diminution of the functions of the elbow joint and by deformity of the region or of the limb. The paper was devoted mainly to a consideration of the causes of these unfavorable results.

Causes of limitation of motion. Permanent stiffness after simple fracture is commonly due to change in the shape of the articular surfaces or in their relations to one another, that destroys the coincidence of the axis of curvature with that of motion; or to an overgrowth of bone upon the surface of the humerus, arresting the movement of the olecranon or coronoid process; or to more or less extensive ossification of the ligaments and capsule.

Overgrowth of bone from traumatism is more frequent in the young than in the adult, as limitation of motion may be caused by bony outgrowth from the humerus, itself the result of a persistent displacement of a fragment or of separation of the periosteum. The most efficient way to prevent it, lies in an exact diagnosis and reduction of displacement and in the avoidance of any subsequent irritation of the periosteum.

Limitation of motion from thickening of the capsule and peri-articular tissues by the process of inflammation is as a rule a temporary condition. In the more permanent form the lesions are more extensive. The soft tissues are torn and a true cicatrix results. The thickened tissue may become ossified in whole or in part. This cause of limitation has been attributed, but improperly so to prolonged immobilization and has led to the practice of passive motion in the early stages with the object of preventing its occurrence. Observation and experiment has, however, shown that immobilization is not itself a cause of ankylosis, but that it is an efficient agent against

inflammation, and that passive motion is powerless to prevent ankylosis when conditions contributory thereto are present. Passive motion therefore is either harmful or useless. The primary cause of the exudation and of the proliferation of connective tissues that are the anatomical obstacles to motion, is of course the original traumatism. The secondary cause is the following reaction. The only factor that can be increased or diminished by treatment is the second, that is the inflammatory reaction. Rest is universally admitted to be the best antiphlogistic measure that can be applied to an inflamed joint. An important disadvantage of rest at once suggests itself namely, that the torn tissues may unite with shortening. Both clinical observation and theoretical considerations indicate that passive motion in the early stage does not avoid this disadvantage, but actually increases it. In the present state of our knowledge it seems that a certain amount of limitation is unavoidable. Massage, however, hastens the absorption of exudation and the restoration of mobility, as does also permanent elevation or suspension of the limb. Reunion with shortening may be opposed by change in the attitude of the limb every few days. At a later period passive motion has its value, but in the early stages it is to be avoided.

In regard to deformity reference was made to one only, that commonly known as the "gun stock" deformity due to unreduced displacement of the internal or external condyle. In order to avoid this deformity the displacement should be reduced by pressure upon the fragment or by abduction of the extended forearm until its outward deviation is equal to that of its fellow and immobilization, by dressings that will not reproduce the displacement.

Treatment.—The first element in the treatment is the reduction of the displacement. If necessary an anæsthetic should be employed. In supra-condyloid fractures permanent traction is usually necessary to overcome the displacing action of the flexors and extensors. This can be effected by vertical suspension of the limb, the patient being kept in bed or by a weight suspended from the upper part of the flexed forearm while the patient is erect. The former method was recommended for the first fortnight of treatment, especially in compound fractures. Suspension is made by strips of adhesive plaster placed along the front and back of the forearm and attacked to the support by India-rubber cords or a weight and pulley. In simple fractures the other method may be employed. The limb is encased in plaster-of-Paris with the elbow at the right angle. The wrist being placed in a sling and a weight not exceeding five pounds suspended from the elbow.

In inter-condyloid fractures with marked separation, there is no practicable means of surely maintaining reduction and considerable limitation is to be expected. In these cases a broad heavy posterior splint covering about two-thirds of the circumference of the limbs, the elbow being at a right angle, was recommended.

In fractures of either condyle the treatment is by a posterior rectangular splint, either of metal or plaster. The forearm has been supported across the chest by a sling at the wrist. In some cases treatment in full extension has been employed. After this method has been employed for the first ten days or fortnight, recourse is had to the position with the elbow at a right angle.

Gentle massage will hasten convalescence. It may be advisable to change the position of the limb during treatment and if great limitation is to be expected, that attitude should be given to the joint in which, if stiff, the usefulness of the limb will be greatest. In supra-condyloid and inter-condyloid fractures, the splint should be worn six weeks and in fractures of the condyles, for about four weeks. After removal of the splint, the arm should for a few days be supported in a sling if necessary. Passive motions may at this time be resorted to increase the range of motion.

DISCUSSION.

Dr. N. P. Dandridge, of Cincinnati, agreed with what had been said by the reader of the paper and referred to two cases occurring under his observation. In one case of simple fracture from great violence in which non-union had occurred, the arm was treated in a position of almost complete extension. The second case was one in which after fracture at the elbow joint a projection of bone pressed upon the median nerve causing severe pain and atrophy of the muscles in the distribution of the nerve. The case was seen three months after the accident. Removal of the bone was followed by relief of the pain and a gradual restoration of the function of the muscles.

Dr. R. A. Kinloch, of Charleston, thought that in simple fracture about the elbow, if seen early and the ordinary principles in regard to the treatment of fractures be applied, the result would be good. Probably in a

large number of cases we must expect some restriction of movement. The most important element in the treatment is the proper reduction of the fragments. This should be done at once, an anæsthetic being employed if necessary. The proper reduction of the fragments is determined by testing the functions of the joint. The second indication is to retain the fragments in the proper position. If the case is treated with intelligence it makes little difference what way the splint is applied or whether it is treated in flexion. The position is to be determined largely by the peculiarities of the individual case. He was himself inclined to favor the extended position.

In regard to passive motion used early, he thought that it did more harm than good. If the parts have been properly reduced and held in position and there is danger of subsequent trouble, passive motion may begin in three or four weeks.

Dr. E. M. Moore, Rochester.—In a fracture of the internal condyle the cause of the displacement is the flexor muscles and to relax these muscles the arm is to be placed in the flexed position. In fractures of the external condyle he had also found this position the preferable one, for when the forearm is flexed thedense fascia on the front of the arm is rendered tense and acts as an efficient splint. He objected to the extended position entirely. He treats all fractures about the elbow joint with the exception of fractures of the olecranon in the rectangular position for the first ten days or two weeks. Latural splints are used with the object of pressing the fragments together after the tenth day. The fracture is dressed every other day. The angle of the splint being changed a little each time so that the arm passes from almost complete flexion to almost complete extension. He had never had the slightest difficulty in any case since adopting this mode of treatment.

Dr. James M. Cann, Pittsburgh, said that it was not always easy to determine the exact nature of these fractures about the elbow-joint even with the patient under the influence of an anæsthetic. While the patient is under the anæsthetic the preliminary dressing should be applied. He recommended the use of the internal angula splint preferably that suggested by Dr. Packard. He did not favor the use of passive motion at an early stage. Passive motion should not be resorted to prior to the twentieth day.

Dr. John B. Roberts, Philadelphia, thought that the teaching advocated by some of the speakers was to a large extent dangerous and incorrect, that is that injury about the elbow joint should be treated in the flexed position. He believed that except in unusual cases these fractures should be treated in the extended position according to the doctrine advocated by Dr. Allis. In this way the gun-stock deformity is avoided. He now approached fractures of the elbow with the same certainty of getting a good result as he did fractures of the lower end of the radius.

Dr. S. H. Weeks, Portland, dwelt upon the fact that all authorities, with few exceptions, advised the flexed position in the treatment for fractures about the elbow joint. Until there was more positive evidence of the value of the extended position he thought it better to continue to treat these fractures in the flexed position. He employed passive motion in a modified way. After two weeks' treatment the splints are removed and the joint moved gently about, but not sufficiently to cause pain. This simply alters the relations of the parts without doing any damage.

Dr. L. McLane Tiffany, Baltimore, thought that as good results were reported from various dissimilar methods of treatment we must conclude that the prognosis of elbow injuries depended more upon the patient than upon the surgeon. Fracture of the elbow is rare in adults and common in children, and in children with reasonably good treatment there should be a good result and by the time adult age was reached the motion would be almost perfect. In the adult the prognosis is more grave. He had had good results both with the flexed and with the extended position. In compound fractures the secret lies in the relief of tension irrespective of the apparatus employed. Incision up and down the arm through the strong fascia should be made as freely as may be required.

RETRO-PERITONEAL TUMORS—THEIR ANATOMICAL RELATION—PATHOLOGY, DIAGNOSIS AND TREATMENT, WITH REPORT OF CASES, BY ALBERT VANDERVEER, M. D., OF ALBANY.

As our experience in abdominal surgery increases, we find that there are yet many problems that confront us, and of these problems there are none which require more careful research and are capable of greater improvement, both in operative management and in prognosis, than the new growths arising from the retro-peritoneal space. In order to bring this subject more fully to the attention of the Association, the following cases are reported:

CASE 1.—Miss S., aged 42 years, consulted the author in March 1882, on account of a tumor located in the back. This was first noticed fifteen years previously. Examination showed a large tumor attached to the right side of the spine at the level of the first lumbar vertebræ. It seemed attached to surrounding tissues of a smooth contour and hard to the touch. Operation was advised but declined. The tumor continued to increase in size until November 1888, when she died from other causes. The autopsy showed the origin of the growth to be the connective tissue about the right kidney. It was encapsulated and could have been easily removed. It weighed eight pounds. The microscope revealed the presence of fat and myxomatous tissue with an abundant small round cell infiltration.

CASE 2.—Mr. V., aged 42 years, married. Was first seen May 28, 1889. Five years ago strained his back. The pain following this has not been relieved by any treatment. Three months ago he became worse; the abdomen began to enlarge. The pain was more severe. He lost appetite and flesh. The ankles became œdematous and a distressing cough developed. The urine was scanty and high colored but free from albumen and casts. The abdomen was more prominent on the right side. Fluctuation could not be elicited but palpation gave an impression similar to that of a lipomatous tumor. On the right side there was flatness from the nipple to the crest of the ileum with the exception of a narrow space along the border of the ribs where there was a zone of resonance. The probability of the growth arising from the kidney was strong and an exploratory abdominal section advised.

This was done June 1, 1889. An incision five inches long being made over the external border of the right rectus muscle. The growth was reached and the capsule divided, but from its attachments it seemed futile to attempt its removal. The patient recovered from the operation and for a considerable period was relieved of pain. The growth continued to increase in size, and the patient died October 21, 1889.

The tumor which weighed fifty-six pounds originated behind the peritoneum and was attached to the right kidney. The microscope showed it to be an adipose tumor presenting a condition of myxosarcoma with sarcomatous infiltration.

CASE 3.—Mr. N., aged 39, a brass worker by occupation, began to have vague abdominal symptoms late in the year 1888, with failure of flesh and strength. In June, 1889, he developed jaundice and a tumor was found in the left hypochondriac region and lumbar region. This was as large as a child's head. An exploratory operation was advised but refused. It was believed that the growth was connected with the left kidney. The tumor continued to grow and in November 1889, the patient died. The tumor was found to have sprung from the region of the left suprarenal capsule and involved it. It also surrounded the kidney. It weighed six and one-eighth pounds. The microscope showed an appearance similar to that in case two, but with greater preponderance of sarcomatous and myxomatous elements.

A careful study of the reported cases and of the literature of the subject impresses one with the belief that the most frequent origin of these growths is in the connective tissue of the capsule of the kidney, and that the next most frequent seat is the supra-henal capsule. None of these tumors can be said to be absolutely benign, even those which are made up entirely of histological elements, such as lipoma, fibroma, or myoma. While they show no great tendency to recurrence after complete removal, yet, from the great size to which they develop and their tendency to undergo degenerative changes they can not be classed as innocent growths.

In many of the reported cases the origin is not stated and indeed it would, from the subsequent changes in anatomical relations, seem quite impossible to determine the exact origin of many of the large retro-peritoneal growths. They almost always present themselves in the line of least resistance, that is anteriorly. Careful study of these tumors shows them to be of a mixed variety, containing both the elements of the lipoma and myxoma tissues which are histologically very closely associated. Fat is developed from embryonal mucin and in post-fœtal life occupies those spaces in the economy which later, in the fœtus is of myxomatous elements. Doubtless many of these growth arise, under suitable conditions, from congenital neoplasms. These growths often become cystic and reach immense proportions. They often present a numerous round-celled infiltration pointing to a sarcomatous element. Sarcoma either in its typical form or in combination with other tissues often occurs.

Diagnosis.—There is not a single symptom that is pathogenic and the diagnosis is more dependent upon the process of exclusion. Tumors of the other abdominal and pelvic organs as well as aneurisms and tumors of the abdominal wall must be excluded. As already stated many of these tumors have

their origin in the capsule of the kidney or the connective tissue surrounding it, these present, in their earlier stages at least, physical signs differing in no respect from tumors of the nephritic parenchyma. In none of the cases reported has renal hæmorrhage or albuminuria, with or without casts, occurred, conditions which are the rule with tumors of the parenchyma of the kidney a valuable adjunct in the diagnosis consists in noting the relation of the tumor to the intestinal tube as shown by the insufflation of hydrogen gas.

Prognosis.—Without operative interference there is but one termination. The rapidity with which the fatal result is reached varies with the character of the growth. The mean duration of life after the discovery of the tumor is about nine months. Operative treatment offers much promise. The immediate mortality of the operation is great, yet from the hopelessness of the condition, it is to be urged with great earnestness.

In operations for the removal of retro-peritoneal growths, the choice of incision, will usually fall in the line of the linea semilunaris. By the separation of the peritoneum from the internal border of the tumor, it may be attached to the internal border of the abdominal wound, making the whole field of operation extra-peritoneal. The incision of the posterior fold of the peritoneum should be external to the attachment of the mesentery of the colon, although not absolutely necessary. In the removal of the growth by enucleation, care should be taken to determine the source of the blood supply and the relation of the great vessels. There are likely to be large thin-walled veins deep in the wound, requiring ligature. At times it will be found necessary to remove the kidney with the tumor, as in all abdominal work, the operator should be prepared for any and every complication. After enucleation, the cavity must be thoroughly drained. The after treatment is the same as all other severe abdominal sections.

Like all other conditions in surgery, there is certainly a better understanding of these cases going on. A more correct and early diagnosis, as is the case in all that pertains to medicine and surgery, will surely bring a larger percentage of recoveries.

These are purely surgical cases, no medicines, no mineral waters or baths, electricity or other lines of therapeutics having, as yet, been of any service.

The paper was appended by a complete bibliography of retro-peritoneal new growths.

INTRA-THORACIC SURGERY—BRONCHOTOMY THROUGH THE CHEST WALLS FOR FOREIGN BODIES IMPACTED IN THE BRONCHUS, BY DE FOREST WILLARD, M. D., PHILADELPHIA.

Dr. Willard gave the results of a number of experiments on dogs in which an opening was made in the chest walls, one or more ribs excised and the bronchus thus reached either anteriorly or posteriorly. The operations were all fatal.

The following conclusions were presented:

1. In dogs, the bronchus can be reached either anteriorly or posteriorly through the chest walls, but the anatomical position is in such close proximity to large and important structures that safe incision is a matter of extreme difficulty and danger.

2. Bronchotomy through the walls of the thorax is an operation attended with great shock from collapse of the lungs and until the technique is further advanced is liable to result in immediate death.

3. Collapse of the lung is more serious in a healthy organ than in one previously crippled by disease.

4. The serious inherent difficulties are shock, suffocation from lung collapse, enormous risks of hæmorrhage from pulmonary vessels, injury of or interference with the pneumogastric nerve, great and fatal delays owing to the exaggerated movement of the root of the lung caused by the excessive dyspnœa.

5. Closure of the bronchial slit is slow and dangerous; to leave it open causes increasing pneumothorax by its valve action and also permits the entrance of septic air into the pleural cavity.

6. Although a foreign body can be reached by this route, yet removal is hazardous. To secure a subsequent complete cure seems in the present state of knowledge very problematical.

7. When the presence of a foreign body in the bronchus is definitely determined, and primary voluntary expulsion has not been accomplished, there is great danger in permitting it to remain, even though it may but partially obstruct the tube, the risks both of immediate and of subsequent inflammation are serious.

8. Low tracheotomy is then advisable when the presence of a foreign body is certain, it adds but little to the risks and affords easier escape for the object even when extraction is not feasible.

9. *Subsequent dangers arise from severe and prolonged instrumentation, not from tracheotomy.*

10. Voluntary expulsion is more probable after than before tracheotomy.

11. Tracheotomy is permissible even after an object has been long in position unless serious lung changes have resulted.

12. The question of tracheotomy will depend largely upon the form, size and character of the foreign body.

13. The term bronchotomy should be limited to an opening of the bronchus, and should not be employed to designate higher operations.

14. The risks from thoracotomy and bronchotomy following unsuccessful tracheotomy, are much greater than the dangers incurred by permitting the foreign body to remain.

Discussion.—Dr. J. R. Weist, of Richmond said that from a study of one thousand cases in which a foreign body was impacted into a bronchus, he reached the conclusion that the chances of the patient were better if left alone than if an operation of what was formerly called bronchotomy was done.

Dr. S. H. Weeks, of Portland, thought that in these cases tracheotomy should be performed as this offers a chance of reaching the foreign body and also offers a chance for the spontaneous expulsion of the body. It occasionally happens that the body is forced up against the vocal cords and then falls back or else suffocates the patient before relief could be afforded. He reported the case of a child ten years old, who had so gotten into the trachea a screw cap that was used to close a pocket flask. It had been there several days before the patient came under observation. It was decided to open the trachea, this was done and the patient suspended but the foreign body did not escape. The patient was then placed in the horizontal position and the attempt made to remove the cap with forceps. It could be felt but not grasped. After working unsuccessfully for some time, the patient was again suspended and the attempt with the forceps renewed and at once the body was grasped and removed. The patient made a perfect recovery.

Dr. Kingston, of Montreal, reported a case in which he had removed an artificial incisor tooth with its attachments from the trachea where it had remained for three months. The operation necessitated prolonged manipulation but was followed by no bad results.

Dr. Howard Marsh, England, thought that on account of the danger of leaving the foreign body in the bronchus, the uncertainty in regard to the possibility of removal until the attempt is made and the safety of tracheotomy, the operation should be performed. The operation should be performed in all these cases as it gives the patient a chance where otherwise he perhaps has none.

Mr. Arthur Edward Durham, of London, agreed with the author of the paper that the operation through the chest wall was a dangerous and doubtful procedure. The more he saw of these cases the more satisfied was he that the proper thing to do where there is clear evidence that a foreign body is impacted in the bronchus, is to open the trachea low down and endeavor to remove the foreign body or to facilitate its spontaneous expulsion. This opinion was the result of considerable experience.

Dr. Lewis A. Stimson read a paper on "Old Unreduced Dislocations of the Elbow."

The following papers were read by title:

"Fractures Involving the Upper Third of the Femur, Exclusive of the Neck;" by Dr. O. H. Allis, Philadelphia.

"Fractures of the Bones Which Form the Elbow Joint, and Their Treatment;" by Dr. Levi C. Lane, San Francisco.

"Hæmiplegia With Aphasia, Following Ligature of the Common Carotid Artery;" by Dr. J. Ewing Mears, Philadelphia.

"Investigation of Pistol Shot Wounds of the Skull and Their Treatment;" by Dr. E. H. Bradford, Boston.

"The Results of Experiments in the Filling of Cavities of Bones Following Operations for Caries;" by Dr. E. H. Bradford, Boston.

After extending a vote of thanks to the retiring president the Association adjourned to meet in Boston, Mass., in June 1892.

Selected Formulæ.

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℞

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The Editor will be pleased to get medical news, but it is important that brevity and actual interest shall characterize communications intended for publication.

LEADING ARTICLE.

CERTAIN CAUSES OF FAILURE IN THE USE OF PESSARIES.

The reason why the use of pessaries is condemned by some, is because they fail to appreciate the real status of the instrument. In order to accomplish definite results it must be used under definite conditions. Perhaps the most frequent cause of disappointment to the inexperienced physician in the use of the pessary, and of discomfort or even injury to the patient, is the failure to realize that pelvic inflammation—salpingo-oöphoritis—is either a relative or an absolute contra-indication to its employment. Malposition of the uterus is a matter of secondary and minor importance, in the presence of advanced tubo-ovarian inflammation. As well may we treat a uterine lesion when a large ovarian cystoma is present. Again malpositions of the uterus are frequently of a purely secondary or symptomatic nature. For example we have "anteflexion, and retroflexion with adhesions." This term simply illustrates the persistence of an old nomenclature. The real disease is almost always a chronic peritonitis, or the remnants of a peritonitis—the uterine malposition being simply an accident in the course of the disease. Whether it is best to attempt the reposition of the organ in such cases depends entirely on the nature of the peritonitis and the state of the tubes and ovaries. In some of these cases in which the tubo-ovarian condition does not require operation, an Emmetts pessary of suitable size will afford relief by taking off the strain from adhesions, but broadly speaking pessaries are contra-indicated in the entire class. Again retroversion or flexion and prolapse of the uterus growing out of laceration of the levator ani muscle is an illustration of malposition which is secondary or symptomatic. The lesion is the laceration. Other factors may enter into the case, as the tonicity of the tissues in general, the habits of the patient, etc., but the primary fact is the tear in the muscle, or, as it is generally stated, in the perineum. In this broad group of cases the utility of pessa-

ries is undoubted, but the results to be gotten in the individual case depends strictly upon the conditions present. The greater the muscular lesion, and the more the patient must do manual labor, the less can be accomplished by pessaries. When the supporting action of the pelvic floor is markedly deficient by reason of the laceration, a suitable plastic operation is indispensable to a cure. When this has been done the pessary may prove very useful in the cure of the uterine malposition which remains. But when the laceration is slight and the loss of support is but little, if the patient does not need to do manual labor, she can be made comfortable and relatively well by maintaining the uterus in its normal position by a suitable pessary.

The field in which the pessary is most useful, and its employment most logical, is in the treatment of simple retroversion and flexion, and prolapse. The rationale of its use is that it keeps the uterus in proper position, while the cause of the displacement is removed, and thus the secondary consequesces of the displacement are cured. For example, the retroversion due to subinvolution of the uterus following labor is curable by maintaining the uterus in proper position while the subinvolution is combated by local depletion, with glycerin or the artificial leech, by the use of ergot, the regulation of the bowels, attention to the general health, and the avoidance of undue exercise—lactation being maintained when possible.

Finally, the practitioner will experience the least disappointment in the use of the pessary, who will regard it as a mechanical agent capable of producing certain results only in a line of treatment, and who will consider the faithful employment of the other measures or agents indicated as being of equal importance in effecting a cure. Not only that, but he must have due regard for the contra-indications present. The pessary has done harm enough as a "cure all" for the manifold ailments of women, and the day should be past when it can be used as the "routine treatment."

SYPHILIS AND GASTRIC ULCER.

An interesting case is reported in the September number of the *British Medical Journal*, from the service of Dr. J. Keser, at the French Hospital, London. The point of interest is that it indicates that syphilis may greatly influence the course and treatment of gastric ulcer.

Dr. Keser's patient was an unmarried female aged 19 years, who presented on admission the classical symptoms of ulcer of the stomach. Careful treatment with various drugs failed to relieve her, and after about three months, with no improvement in her condition, it was discovered that she had condylomata on the labia majora and mucous patches on the tonsils. Antisyphilitic remedies were substituted for all other treatment, and a strikingly rapid improvement began and proceeded to an uninterrupted convalescence.

From the published account of this case, it would appear that the presence of the syphilitic virus in the blood can delay or even prevent the healing of a gastric ulcer, and therefore the presence or absence of syphilis becomes a proper subject for investigation in all cases of ulcer of the stomach, particularly in those resisting ordinary treatment.

CORRESPONDENCE.

A WORD FOR SURGERY OF THE PAST.

To the Editor of The Medical and Surgical Reporter:

In your journal of the 4th of July, in Dr. Rickett's excellent article on Nephrectomy, page 10, vol. LXV, he refers to Pean as having first in modern surgery performed Splenectomy. With your permission I would draw his attention to letter LXV, article 10, of Morgani's great work, where he will find recorded a case of successful Splenectomy performed by "the very excellent Fontana," and reported by him in his medical and anatomical observations. The patient, a woman, survived the operation for

five years "and having conceived and brought forth in the mean time; least any one should doubt of the extraction of this viscus, no spleen was found in any part of the body on dissection; only cicatraces appeared in the neighbouring parts; to which it is wont naturally to adhere." By this post I send you a copy of the *Medical Press and Circular* which contains some articles of medieval surgery of the kidney and abdomen.

Yours truly,

GEORGE FOY.

7 Cavendish Row, Rutland Square, Dublin.

BOOK REVIEWS.

THE SURGICAL TREATMENT OF WOUNDS AND OBSTRUCTIONS OF THE INTESTINES. By EDWARD MARTIN, M. D., and H. A. HARE, M. D., Philadelphia: W. B. Saunders, 1891.

This work was awarded the "Fiske Fund Prize" for 1890, as being the best essay presented upon the subject of which it treats. It is composed of an introductory and twelve other chapters, besides tables of cases of cœliotomy for gun-shot wounds of the abdomen, and a summary of the tables of these injuries. The subjects considered include the following: Congenital malformations, intussusception, internal strangulation, valvulus, obstruction from foreign bodies, intestinal paralysis, and chronic obstruction. A chapter on peritonitis is added, for the reason that it is such a frequent complication of intestinal obstruction. The relative merits of the opium and the saline treatment of peritonitis are discussed and the indications for each method of medication is pointed out. The chapter on peritonitis is followed by others on diagnosis, general, special and surgical treatment of obstruction of the intestines, etc.

The chapter on wounds of the intestine is very complete. Much of the material for this essay, is based upon considerable experimental work done in the laboratory, references to which appear throughout the book.

Taken in its entirety, the volume is a thorough treatise upon the subjects considered; the conclusion reached by the authors in every case being based upon clinical and experimental studies rather than upon personal prejudice or preference—which so often mars and lessens the scientific value of a work,—essentially one of reference.

We consider the present work an important addition to medical literature, and one which will amply repay the reader for time spent in its perusal.

A MANUAL OF DISEASES OF THE NOSE AND THROAT INCLUDING THE NOSE, NASO-PHARYNX, PHARYNX AND LARYNX. By PROCTER S. HUTCHINSON, M. R. C. S., London. P. Blakiston, Son & Co., Philadelphia, 1891.

This brochure, of nearly one hundred and thirty pages, amply fulfils the author's intention of supplying to the post-graduate student a concise and practical work upon this especial branch of medicine.

Hay fever, the author states is most prevalent in Europe during June and July, and in America during August and September. Nothing new is suggested in the treatment of this distressing complaint. The author advises, change of climate; when this is impossible, and the patient has to reside in the country during the hay season, a pair of spectacles with broad, closely fitting brims, and some form of nasal respirator should be worn. A veil sufficiently impervious to keep out the pollen is too hot for summer.

Locally, chromic acid (gr. 1–8, 1–16 to $\bar{3}$j water) is advised as a spray for the nose in some cases. Perchloride of mercury (1–3000) is also suggested; the author disapproves of the use of cocaine, as he thinks it is injurious if used over long periods. Nerve tonics are recommended, such as, quinine, nux vomica, and valerianate of zinc.

The book should certainly be considered as the *vade mecum* to the student of diseases of the nose and throat; and to all interested in acquiring a practical working knowledge of this branch of medicine, the work can be conscientiously recommended.

PERISCOPE.

THERAPEUTICS.

TREATMENT OF GALL-STONES.

According to Naunyn, *Centralblatt für klin. Medicin.*, about every tenth adult suffers from gall-stones. The disease is extremely chronic and painful. Latterly surgical interference has been resorted to, but there still remains much for the physician to do. It is necessary first to understand the mode of origin. Gall-stones are formed if the bile is laden with the ingredients that form them, and which are very insoluble, namely, cholesterin and billirubin-chalk.

The cause of the increase of this in the bile is disputed. One view states that the excretion of cholesterin and of chalk is too great —cholesterin because of anomalous metabolism, chalk because of two much chalk being in the food. The other view is that the bile has lost its power of dissolving these bodies. Cholesterin forms two per cent. of the solid ingredients of the bile, and this proportion is fairly constant, independent of disease or food, and also of the amount present in the blood. There is an increase, however, where there is catarrh of the bile passages. Chalk also is formed from the diseased mucous membrane, the amount otherwise being independent of the quantity taken with the food. Naunyn holds that it is untenable to look for the formation of gall-stones in decomposition of the bile. Physiological considerations have afforded no help in accounting for the formation of gall-stones. The frequency of the occurrence can only be safely based upon post-mortem examination. The per centage found after death varies from five to twelve per cent. with different competent observers. The differences of these observations are probably due to the fact that the gall-stones are easily overlooked. From all statistics three very important deductions can be made: (1) Gall-stones are four and a half times more frequent in women than in men. (4) Before thirty they are infrequent (two to three per cent. Schrœder), after that age they become much more frequent—ten per cent. In old age their frequency becomes strikingly increased—twenty-five per cent. over sixty years of age. (3) Women that have borne children are most frequently affected of all. Thus Schrœder found that among women with gall-stones ninety per cent. had borne children. It must therefore be concluded that the most distinct cause is the stagnation of the bile in its passages. In women this is favored by clothing and pregnancy, both of which retard those movements of the diaphragm that assist in the expulsion of the bile. The frequency of gall-stones in old age is due to retardation of the bile flow, through atrophy of the smooth muscles in the bile passages (Charcot). The stagnation produces disease of the mucous membranes of the passages, and the cholesterin and bilirubin-chalk arise in consequence of destruction of the epithelium. At first an amorphous deposit is formed, which by absorption of the fluid becomes granular. These granules increase by deposition of bilirubin-chalk, and the infiltration of cholesterin. The latter supplanting the bilirubin-chalk forms ultimately the beautiful pure white cholesterin-solitaire. A further secondary formation occurs in the deposition of carbonate of lime, of importance because the stone is then no longer soluble. The cause of the stone forming desquamative angio-cholitis is the retarded discharge of the bile, through which an infection of the bile passage is favored. It is also possible that the bacillus growth in the bile favors the formation of gall-stones. Probably it is in this manner that the intrahepatic stones are formed. In regard to symptoms there should be distinguished a regular form and an irregular form of the disease. The former occurs when there is simply lodgment of the calculus in the gall-bladder or passage of the stone along the duct. The irregular form is seen when there is infectious angio-cholitis with abscesses in the liver, fistula, and all other consequences. As a final issue of the regular gall-stone disease may be the formation of carcinoma in the biliary passages and the liver. In regard to the symptoms, it should be remembered that the stone is most often lodged in the cystic duct, giving rise to colic, and less often in the common bile duct; therefore the occurrence of jaundice is not so common. Further, it should be borne in mind the ease with which infection can arise, giving rise to biliary fever. The connection between gall-stone and food is not proven, so that it is not possible to recommend a prophylactic diet. For the removal of gall-stones, cholagogues are not to be depended on. After an abundant varied diet the bile flows more freely than after cholagogues. In practice, errors of diet should be avoided, and alkaline saline waters (particularly the hot Karlsbad) act beneficially. These act by increasing the peristaltic activity of the digestive tract, and increasing the flow of blood to the abdominal organs. In the peristalsis the bile passages participate, and the movement of the bowels act as a form of massage, while the diseased mucous membrane benefits by the increased flow of blood. The injection into the rectum of large quantities of hot water serves the same purpose.

Fürbinger based his remarks on 64 cases he had carefully observed, so that there was no doubt of the diagnoses. Of these, 13 were men and 51 women. The chief site of pain did not lie in most of the cases in the right hypochondrium, but in the epigastrium, radiating from thence upwards and downwards. With jaundice there was enlargement of the liver, and the dilated gall-

bladder was not infrequently to be felt. In 24 out of 41 there was slight fever; considable slowing of the pulse can accompany the fever. In 30 out of 41 there was jaundice. Duration of attack showed a variation from transient to several days' duration, with intervals of weeks and years. The *corpus delicti* should always be looked for, and its absence does not vitiate the diagnosis. Very seldom was the stone perceived through a peculiar grating noise in the gall bladder. When there is fever, it is irregular and accompanied by other symptoms pointing to the liver. When protracted for weeks and months the victim declines with severe cachexia (liver phthisis). The local pain may not be excessive till there is inflammation and ulceration of the peritoneum, on account of the latency of the catarrh of the gall bladder and biliary passages. In suppurative inflammation of the liver, pain in the right hypochondrium and jaundice are frequently wanting. When perforation takes place into the peritoneal cavity a fatal peritonitis is set up by the decomposed bile. When a fistula is formed it is often very distant, and daily discharges quantities of bile and rarely gall-stones. Most frequently the perforation takes place into the small intestine. The gall-stone can here cause grave mischief (ileus, perityphlitis, etc). Finally there may be set up interstitial hepatitis (too frequently doubted) as well as adhesions between the liver and neighboring organs. The latter may be a source of great discomfort. In regard to the diagnosis, gall-stone disease was often mistaken for gastric ulcer, cramp of the bowel and stomach, renal colic, and hepatic neuralgia. Further, the pain may lie in any region of the abdomen save that of the liver. Slight jaundice is not easy to recognize, but is valuable when it does occur. Surgical interference should not be delayed too long in order to aid the diagnosis. The puncture of the gall bladder is dangerous. Care should be taken not to confuse the intermittent fever with malaria or typhus. In regard to prognosis of the attack it is favorable, but of the after condition rather grave, although the surgical methods have improved it. It is consoling to know that serious cases can obtain ultimate recovery by internal treatment. Of Fürbinger's cases thirty-four per cent. were cured, forty-two per cent. were improved, ten per cent. were unsuccessful, and fourteen per cent. died. Of the six treated by surgical means four recovered. In regard to treatment, it is necessary to prevent the formation, to remove the concrements, and to combat the tendency to the formation of gall-stones. Morphia and opium are the best agents for subduing the attacks of colic. It is folly to try to dissolve the stone. The endeavor must be made to increase the mechanical driving force of the bile and swell out the stone. Health resorts and springs have much success and not a few failures. The salicylate of soda and the oil cure has been useful in Fürbinger's hands. With the latter the liver becomes permeated with fat, and a saponified fat is formed which can be found in the stools as pseudo-gall-stone. While this treatment can often be borne, it sometimes gives rise to distressing dyspepsia. In regard to diet, more depends on temperance than on the choice or denial of certain foods. There is no value in theoretic or empiric reasoning, and there should only be excluded excessive fatty and sugary foods, alcohol of bad quality, and notoriously indigestible matters. Of high value are warm baths, rational clothing, dwelling in fresh air, and avoidance of over exertion. Fürbinger cannot praise the attempts to express the stone by kneading the gall bladder and pressing the liver. Notwithstanding the brilliant results of surgical practice, he thinks that the operative procedure should not be lightly undertaken. Still when all other means fail, and the patient is threatened with cholæmia and pyæmia, then he would advise surgical interference. The operative removal of cicatricial bands is often valuable.

Reidel gave his experience of thirty-two cases. Sixteen of these had not jaundice, on whom he operated. All recovered, and no fistula was left behind. Sixteen had jaundice and the result was not so satisfactory. Ten completely recovered, two were under treatment, and four died. Of these four, one died after complete extirpation of the gall-bladder, two were in an exhausted condition when they came under treatment, and one died in consequence of escape of bile into the peritoneal cavity.

ON THE LOCAL TREATMENT OF STRANGULATED HERNIA BY ETHER.

Dr. Finkelstein gave in 1882, from his own practice, 63 cases of strangulated hernia. Of these, five yielded to taxis. In 58 he employed "local etherization," taxis having failed, and of these 58 cases 54 proved successful. Of the four unsuccessful cases two underwent surgical operations and two died refusing operative treatment. Since then he has had numerous successful cases re-

ported from others and six in his own practice. (*Berlin Klin. Woch.*) As he remarks himself, the number of cases is sufficiently great, and the successful results speak plainly enough to give his method a status in the practice of medicine—or, at all events, a more extended trial.

The method is simplicity itself. The patient is placed on his back, with the hips slightly raised and legs flexed, and then every ten minutes or a quarter of an hour a table-spoonful of sulphuric ether is poured on the hernia-ring and tumor. The application of ether is carried on for, as a rule, from three-quarters to three hours (or even four hours) until the tense tumor relaxes and lessens a little. As soon as this occurs, and if the strangulated bowel does not reduce itself, several slight efforts are made to reduce it, and almost "always" it slips with a gurgle and amazing ease into the belly cavity.

If the omentum alone be strangulated, the ether method is absolutely useless. As the ether causes an after feeling of heat and burning on the penis, labia, etc., Dr. Koch (America) protects these and other sensitive parts by previously smearing them with olive oil, and in addition covering them with pledgets of cotton wadding.

The ether seems to act thus. Richter, Velpean, and others, hold that strangulation may in some cases be caused by spasm of the abdominal orifice. In these cases the ether may act by relaxing the spasm and thus reducing the bowel movable. That may be so, our author remarks, but he himself lays most stress on the property ether has of producing intense cold by rapid evaporation. The intense cold condenses the gas in the bowel, and by so doing diminishes its calibre. Possibly, also, the cold stimulates the peripheric nerves in the bowel sheath, and excites it to natural peristaltic action, which is more likely to empty it of gas, fluid and semifluid contents than the rude manipulations in taxis.

Hence it follows the less the vitality of the bowel is impaired by taxis, the more successful will be the etherization process. The method certainly deserves a trial.

MEDICINE.

RESPIRATION AND THE CARDIAC IMPULSE.

It is a well known fact, which is stated in all text-books, that the cardiac impulse changes its position with expiration and inspiration. By most authors this is considered to be due to the movement of the diaphragm. Eichhorst says, in his text-book of clinical examination, that if by any means the movement of the diaphragm is paralyzed, the changes in position of the heart's apex no longer occur. Riegel and Tuczek observed some cases in which during inspiration the apex beat became stronger and more perceptible, whilst the reverse took place with expiration. After death, adhesions were found between the pleuro and pericardium. Eichhorst has also recorded a case in which the same symptoms were noticed when a diffused bronchial catarrh was present, being especially severe in the anterior and lower part of the left lung. In accordance with the theory generally accepted, these phenomena are difficult to explain, but Dr. P. E. Livierato brings forward some observations which seem to show that the explanation of the variations in the position of the cardiac impulse with respiration is not, after all, the correct one. After describing the apparatus employed in his investigations, he gives the following conclusions at which he has arrived: (1) The heart may undergo under normal circumstances, considerable changes in its position, which are due to extraordinary movements of the lungs in respiration; (2) in ordinary respiration these changes are not appreciable; (3) the alterations in position of the heart are brought about chiefly by the increase in size of the lungs with inspiration, especially the left; (4) the influence of the diaphragm is only secondary; (5) the same changes of position of the heart can be produced in the dead body by artificial respiration when the diaphragm has no action; (6) in forced inspiration the heart moves to the right, downwards, and forwards; (7) the greatest changes are noticed when the subject is in a sitting position; (8) the movement of the heart to the right is more marked when the expansion of the right lung is prevented by some pathological condition; (9) the movement towards the right is always the one most easily observed, next the downward, the anterior movement being the least; (10) Dr. Livierato claims that such cases as were quoted above—namely, those of Riegel, Tuczek, and Eichhorst, add additional support to his theory; for in these cases the forward movement becomes very marked, since, owing either to the pleuro-pericardial adhesions or to the infiltration of the lower part of the lung, when a deep inspiration is taken the lung tends to push the heart apex more to the

front, and consequently accentuate the anterior movement. It is to be concluded from this that this phenomenon is not diagnostic of pleuro-pericardial adhesions as Riegel and Tuczek maintained.—*Lancet.*

COMPLICATIONS IN TWO THOUSAND FATAL CASES OF TYPHOID FEVER.

Holscher (*Munchener Med. Wochenschrift*, January, 1891,) reports 2,000 deaths from typhoid fever in which post mortems were held. Twenty-four per cent., or 480 cases, died from the immediate effects of the typhoid poison. Twenty-four cases are reported as sudden deaths, the cause of death in the majority of these being degeneration of the heart muscle. Tracheotomy was performed in fifteen cases, usually for perichondritis of larynx. Pregnancy is considered a serious complication. Out of 800 women in the series twenty-seven were pregnant. Five cases of "walking" typhoid are reported; two of these died from an error in diet, two of degeneration of the heart, and one of high grade anemia.

Relapse took place in 103 cases. This number—five per cent. of all the cases—is above the average usually given, but the author considers eight per cent. of fatal cases to have suffered relapse.

The proportion of males to females was as three to two; the average age was 27½ years. Of the males, one was over 75 years, and one a nursing infant. Of the females, one was 72 years, one 9 months.

Death took place in the third and fourth week in fifty per cent. of the cases; twenty-five per cent. occurred in the second and fifth weeks; two-and-a-half per cent. in the first week. Over fifty per cent. of those who died in the first week were free from complications.

The causes of death which reached five per cent. or over were the following: Edema of the lungs, fifteen per cent.; parenchymatous and fatty degeneration of the heart, thirteen per cent.; parenchymatous and fatty degeneration of the liver, ten per cent.; bronchitis, ten per cent,; lobular pneumonia, eight per cent.; croupous pneumonia, seven per cent.; hæmorrhagic lung infarct, six per cent.; perforation of the intestine, with peritonitis, six per cent.; intestinal hæmorrhage and edema of the brain, each five per cent. —*Univ. Med. Mag.*

HEMIOPIA, HEMIANOPIA, HEMIANOPSIA.

The correct use of these words is not well understood and much confusion often results. *Hemiopia* is an old word and signifies literally "half vision," and has always been used to designate that condition in which a person sees only one-half of objects. *Hemianopia* and *Hemianopsia* are synonimous and are new words, recently introduced for the purpose of more correctly expressing the visual changes that follow certain pathological conditions of the brain and signify absence of vision (blindness), in one-half of the field. The little particle, *an*, gives both words a negative signfication, the opposite of vision, blindness. These words are not found in the medical dictionaries, having only recently come into use. They are good words and are much to be preferred to hemiopia, since it is much more important to use a word that will express the absence of the function of vision in certain parts of the field of vision, rather than its presence in certain other parts, not designated, are blind. To illustrate: When I say there is "left lateral hemianopia or hemianopsia," I mean to say (and these words express my meaning exactly), that the left half of the field of vision is blind (absence of vision in that part of the field). If I use the old word, and say there is "left lateral hemiopia," I mean that the vision is still present in the left half of the field of vision, leaving it to be inferred that the right half of the field is blind. It must always be understood that the part of the retina involved is the opposite part to that of the field designated.

This subject is the more important because it plays such an important part in most cases of cerebral localization.—*St. Louis Med. and Surg. Jour.*

THE ÆTIOLOGY OF CHEYNE-STOKES RESPIRATION.

At a meeting of the Section in Medicine of the Royal Academy of Medicine in Ireland, held on May 22d, Dr. M. A. Boyd read a paper in which he reviewed all the physiological explanations of this phenomenon offered by writers on the subject since Stoke's time to the present day. He particularly pointed out the very rational explanations offered by Traube and Filehene, who regarded the respiratory derangement from the altered nutrition of the respiratory-center point of view; and of those of the Dublin school, including Hayden and Little, who regarded it primarily from the cardiac point of view, and complimented the Dublin School as offering by far the best evidence, both clinically and

pathologically, in explanation of the phenomenon. Dr. Boyd, having alluded to the marked rythmical irregularities between the heart pulse and respirations in this affection, drew attention to a point which heretofore in the literature of the subject, so far as he was aware, had not been alluded to—namely, that the latter portion of the forced respiratory phase of the Cheyne-Stokes cycle was chiefly an expiratory one, in contrast to the first portion of it, which was an inspiratory one; and that this forced expiration had a most important bearing on the weak ventricles of the heart, by helping them to squeeze the blood, on the one side into the pulmonary artery, and on the other into the dilated and inelastic aorta. In proof of this, he exhibited sphygmographic tracings showing that it was only during this expiratory portion of the respiration that arterial tension was raised in the arteries, and that this tension continued through the apnœal period following, during which time the respiratory center was fully supplied with arterial blood and the weak and degenerated left ventricle resting. He regarded the apnœal period, during which time respiration was suspended, as only an effort on the part of the higher automatic centers to rest a heart the ventricle of which was too feeble to charge an arterial system the aorta of which might be dilated and inelastic, or the vaso-motor control of which might be defective, and whose own blood supply might be rendered insufficient in consequence, and its nutrition enfeebled. After the intrinsic muscle of the heart had been fed by this increased arterial tension of the expiratory and apnœal periods, forced inspirations began again, and the heart contractions were stronger, but they failed to fill the dilated aorta until the forced expirations, by making pressure on the ventricles, came to their aid again.

The most typical and pronounced forms of Cheyne-Stokes respiration were to be met with in alterations of the heart and aorta produced by degeneration and disease. The forms of it met with in cerebral disease, or injury, and in apoplexy and uræmic coma, without any primary engagement of the heart, he regarded as due to direct interference with the respiratory center in the medulla, either by pressure or by poisoned blood, and the phases of it were never so well marked as in those cases of the affection depending primarily on alterations in the heart.

Owing to its dual origin in this way came the differences of opinion as regarded its pathology. As regarded its treatment, Dr. Boyd found so much improvement following the inhalation of oxygen in all the cases where disease or degeneration of the heart produced it, that he urged a trial of this remedy in all such cases, and ventured to suggest, from his experience of the remedy, that it should be tried not alone in this affection but in all cases where degeneration of the heart existed from any other cause.—*N. Y. Med. Jour.*

SURGERY.

THE OPERATIVE TREATMENT OF SQUINT.

The careful investigations by numerous observers, beginning with Donders, of the conditions which give rise to non-paralytic strabismus, have, as might naturally have been anticipated, led to considerable modifications in the treatment of this deformity. The very noticeable result of the increased knowledge of the pathogenesis of squint has been a great diminution in the number of cases subjected to operation. Not very many years ago cases of squint in children were treated by tenotomy with little or no attempt to correct the ametropia almost constantly present. The results of these indiscriminate tenotomies were often disastrous; the deformity for which the operation was undertaken being followed by one even more noticeable. It was for the correction of this latter condition that the operation of advancement or readjustment of the recti muscles of the eye was introduced. In recent years, however, this procedure, in one of its numerous modifications, has come into use as the primary operation in the treatment of many cases of strabismus and, as indicated by a recent discussion at the Ophthalmological Society, finds favor with many surgeons. The greater confidence with which a definite result can be foretold, and the much greater effect which can be produced by this method of operating than by simple tenotomy, seem good reasons for advocating its adoption in high degrees of squint, especially in those cases, probably a large majority of the total number, in which the deviating eye is amblyopic.—*Brit. Med. Jour.*

THE RADICAL CURE OF LARYNGEAL PHTHISIS BY ENDOLARYNGEAL SURGICAL TREATMENT.

A number of interesting cases are narrated by Dr. Th. Heryng, and the following indications for the use of the curette are enumerated:

1. In limited infiltrations or ulcerations of the posterior wall of the larynx and in recent unilateral infiltrations of the epiglottis, which are sometimes the beginning of laryngeal phthisis. Here the double curette of Krause is indicated.

2. In the infiltrations and deep ulcerations of the ventricular bands where one may use the author's curette, or the instrument of Krause or Landgraf.

3. In the hypertrophic ulcerations covered with granulations which spring from the surface or the borders of the vocal bands and sometimes induce dangerous stenosis; for a similar reason in polypoid formations, in tubercular tumors, etc.—*Annales des mal. de l'oreille, du larynx*, etc.—*Epitome.*

MEDICATED INTRAOCULAR INJECTIONS.

M. Abadie injected 1 drop doses of a 1:1000 sublimate solution into an eye affected with rebellious syphilis with most gratifying results. We know how helpless we are in cases of hæmorrhagic glaucoma in which neither sclerotomy nor iridectomy give relief, and where the pain is so intense as to threaten the necessity of enucleation. M. Abadie has succeeded several times in calming the pain and saving the eye by injecting a drop of ergotine into the vitreous. He also obtained good results from the injection of the same remedy in an eye affected by hydrophthalmia, in which there was evidence of intraocular hæmorrhage. He mentions the favorable results obtained from sublimate injections in certain cases of septic infection of the cornea, and in severe forms of macular retino-choroiditis. He thinks the intraocular injections should be followed for some time with subcutaneous ocular injections of sublimate with a view of preventing recurrence of the trouble. M. Darier employs subconjunctival sublimate injections in various ocular troubles supposed to be infectious. Grave forms of specific iritis and cases of the gumma of the iris recover much more quickly with this method than under the usual treatment. This is also true of corneal affections of similar origin, as well as certain acute forms of iritis, in which it is impossible to be certain of the specific nature. Subconjunctival injections are indicated in all cases where it is necessary to reach the trouble in the shortest possible time. No other plan of medication gives such prompt result. A perfectly aseptic solution and syringe must be used. A dose of $\frac{1}{20}$ milligramme at each injection every three days should be given four or five times. It is well to combine the subconjunctival injections with subcutaneous treatment when mercury is indicated. De Wecker opposes the practice of injecting into the vitreous. In a severe case of syphilitic retino-choroiditis one drop of 1:1000 of sublimate solution resulted very unfavorably. —*Union Médical.*

OPERATIVE TREATMENT OF PERITONITIS.

Dr. J. F. W. Ross (*Canada Lancet*) concludes:

(1) That in typhoid-perforation, operation is useless.

(2) That in traumatic general peritonitis, and in all cases of general peritonitis, the abdomen should be opened, washed out and drained, and the cause of the peritonitis found and removed.

(3) That in cases of localized peritonitis, and in obscure cases of injury not followed by general peritonitis, it is better to follow an expectant plan of treatment, unless abscess formation can be made out.

(4) That in all cases of abscess formation, opening and draining will give the most rapid convalescence, and will prevent unfavorable rupture into other parts.

(5) That in view of the complications that may be found after opening the abdomen, the best interests of the patient will be consulted by having the operation done by some one accustomed to do abdominal surgery.

EXCISION OF THE SCAPULA.

At a meeting of the Medico-Chirurgical Society of Bologna on April 19th, the President, Professor Putti (*Riforma Medica*, May 1st, 1891) related two cases in which he had completely extirpated the scapula, leaving the other elements of the shoulder and the arm intact. In both cases the greater part of the muscles covering the bone and portions of those attached to it were removed at the same time. In one of the cases (a man, aged 45, with osteosarcoma of the scapula) the operation had been performed two years previously, the patient dying fourteen months after it of acute enterocolitis; the other (a woman with a myxomatous osteochondrosarcoma of the scapula, who was shown to the Society) had been operated on recently. In both cases, after removal of the bone, an attempt had been made to form a new joint by placing the articular head of the humerus under the acromial end of the clavicle, and suturing the remains of the capsule to the portions of the excised muscles which were

left behind. The deltoid was made to cover the new joint as closely as possible, and fixed in position with sutures. The new joint proved a success in each case, there being a fair amount of mobility and considerable muscular power. The man, indeed, had been able to resume the lighter part of his work as a farm laborer. Professor Putti pointed out that the published statistics of excision of the scapula were for the most part misleading, inasmuch as they included cases of resection of larger or smaller portions of the bone as well as cases of complete removal.—*Brit. Med. Jour.*

PALLIATIVE OPERATIONS IN CASES OF ENLARGED PROSTATE.

Vignard (*Annal des Malad. des Org. Génito-urinê.*, vol. x, 1891; *Centralbl.f. Chir.*, No. 10, 1891) believes that in the very great majority of cases of hypertrophy of the prostate, bloodless therapeutic measures are sufficient. He would recommend surgical intervention—that is, puncture of the bladder or supra-pubic cystotomy, or the boutonniére operation—only in cases of retention where catheterization is impossible, and where septic urine absolutely requires evacuation; in cases where great difficulty in passing the catheter is not relieved by permanent catheterization; and in cases of cystitis not relieved by careful and long-continued medication. In the first two instances the boutonniére operation is indicated, whilst where cystitis is present supra-pubic cystotomy should be practised.—*Amer. Jour. Med. Sci.*

GYNÆCOLOGY.

JAUNDICE IN CHILDBED.

M. Labusquière (*Revue. Obstét. et Gynéc.*, February, 1891) attended in December the confinement of a married woman of emotional temperament. The catamenia were always painful, and associated at their commencement with sharp hypogastric pains and marked anæmia. Attacks of urticaria were frequent. She burst into tears on one occasion because the doctor called and saw her before she had time to adorn herself like a fashionable convalescent. Labor was lingering, and the forceps were applied under chloroform. She manifested extreme alarm when informed that the use of instruments and chloroform was necessary. The child was saved. On the second day the patient was observed to be jaundiced. There was no pain in the hepatic region, but the gall-bladder was very tender on pressure. The milk, as well as the urine, contained biliary pigments. The jaundice subsided within a few days; as it disappeared the patient was troubled with severe itching of the skin and a mild attack of urticaria. The patient made a good recovery, and was able, after the cessation of jaundice, to suckle her child. M. Labusquiére refers to the icterus of menstruation noted by Senator and others. Pilliet has recently written on the liver in eclamptic cases, and jaundice occurring in puerperal eclampsia is an extremely grave symptom. In M. Labusquiére's case the jaundice was simple. The lingering labor might have involved much disturbance of the circulation of the liver. The chloroform might have played some part in causing the complication, though not quite two ounces were used for a long forceps delivery. It appears most probable, however, in M. Labusquiére's opinion, that mental agitation was the cause of the jaundice. Emotion may set up vasomotor disturbance in the liver and consequent excessive secretion of bile. On the other hand, it may act, as Potain believes, by causing spasm of the muscular elements of the bile ducts. The patient had been a spoilt child, and her health was permanently enfeebled by severe attacks of several febrile disorders in infancy.—*Brit. Med. Jour.*

TREATMENT OF PUERPERAL ECLAMPSIA.

Lohlein has collected 325 cases of eclampsia observed in 52,325 puerperal women; *i. e.*, 1 case in 161 labors. The mortality was 19 per 100, and has not been reduced in later years. In a few cases Lohlein performed Cæsarean section, which offers the last chance of saving the life of the mother, although the convulsions do not always cease after extraction of the fœtus. It also affords sufficient hope to warrant recourse to it when the life of the fœtus is endangered. Véit advises morphine in large doses, which gives fairly good results, reducing the mortality to 13.8 per 100. Chrobak prefers chloroform to morphine. Schmorl announces the existence of hæmorrhagic foci either about the portal veins or about the capillaries. The walls of the vessels are frequently ruptured. Emboli are produced by special cells which originate, according to Klebs, in the liver, and according to Schmorl, in the placenta.—*Union Médicale*, June 2, 1891.

OBSTETRICS.

TREATMENT OF PLACENTA PRAEVIA.

Wyder (address at the thirty-ninth meeting of the "Aerztliche Centralverin" in Zurich) rejects the method much in use by practitioners, of tamponade of the vagina with following internal version and extraction of the child, and recommends in its place the method of Braxton Hicks, which has been for a few years in vogue at the principal German clinics, under the lead of Schröder and Gusserow.

The principal disadvantages of the former method Wyder sets forth as:

1. Hæmorrhage from the patulent uterine sinus is not certainly checked by the tamponade. Moreover, in case the waters have broken away, this procedure is absolutely contra-indicated on account of possible internal hæmorrhage.

2. In the manipulations of this method there is always great danger of infection which even the most rigid observance of antiseptic precautions cannot always prevent.

3. In the effort to extract the child immediately after version injuries are often inflicted upon the lower uterine segment.

4. A farther difficulty is encountered in the profuse hæmorrhage of the third stage of labor, and the manual extraction of the placenta with its attending results, rendered necessary by the bleeding.

5. An additional disadvantage of the tamponade is the enormous loss of time to the busy practitioner unavoidable on account of the extremely close attention necessary throughout the whole procedure.

Braxton Hicks' method overcomes all these disadvantages in that at the same time the farther separation of the placenta is hindered by the early discharge of the water; the hæmorrhage attendant upon the manœuvre is completely checked by the natural tamponade,—the breech of the child filling the whole pelvis and in an aseptic fashion.

In Schröder's words the procedure is "rupture the membranes and pull down the foot." Where the case is one of breech presentation this is very simple, but where we have a head or cross presentation it is necessary to turn for the sake of bringing down the foot and should the cervix be undilated, version must be accomplished by Braxton Hicks' method.

After turning and pulling down the foot, the expulsion of the child must be left as far as possible to natural forces. Only immediately impending danger to mother or child affords indication for extraction. Digital separation of the placenta must also be avoided as far as possible.

For carrying out the version in case the mouth of the womb be fully occupied by the placenta, Wyder recommends thrusting the finger through the placentar tissue while with the other hand the presenting part is pressed against the finger. The hæmorrhage following the injury to the placenta—though it comes principally from the placental circulation of the child—is insignificant. The principal objection made hitherto to this method is the great mortality to the child. Wyder justly offsets this by the relatively greater mortality to the mother under the older procedure. By the latter the mortality of mothers was 30–40 per cent. while by combined version in Schröder's and Gusserow's clinics it was 6–7 per cent.

The mortality of children under the older method amounted to 50–70 per cent. and of those who were born alive 30–40 per cent. perished from inanition. The statistics of the clinics mentioned show for the other method a mortality of 70–80 per cent. of the children.—*Therapeutic Monatshefte.*

FIVE CASES OF ECTOPIC PREGNANCY.

Foerster (*Med. Monatsschrift*, November, 1890) remarks that, notwithstanding the many contributions to this subject in recent times, there are still many things regarding it that are obscure. Especially is this true in regard to its ætiology. Even those who have had most experience with this condition are still in the dark in regard to important particulars. There are many cases that are so complicated by peritoneal adhesions that they present the greatest difficulties or are quite unsuitable for operation. The author agrees with those who believe that prior to rupture this condition is almost impossible of diagnosis. His experience includes five cases which have been seen within the past two years. Four of the patients were operated upon—two with a successful and two with a fatal result. The fifth patient died of hæmorrhage, no operation having been attempted. The pains, which resemble labor pains in these cases, are regarded as an important factor in establishing the diagnosis. The atypical hæmorrhages from the uterus should also excite suspicion of this condition, as has been observed by many authors. Other important diagnostic factors are the enlargement

of the uterus, its mobility, the sense of its emptiness when the sound is passed, and the activity of the mammary glands; also the anæmic condition of the patient, which is usually present. As to the operation in such cases, it should be performed as rapidly as possible, and it is doubtless well to leave a large quantity of hot water in the abdominal cavity to be absorbed, and thus take the place of the blood which has been lost.

PÆDIATRICS.

IRRIGATION OF THE STOMACH OF SMALL CHILDREN FOR THERAPEUTIC PURPOSES.

The following are the conclusions of Troitzky (*Arch. f. Kinderh.*, Bd. xii. 5, 6):

1. Irrigation of the stomach is a valuable agent for the treatment of beginning disorders of the stomach and intestines, if used at the proper time. It may prevent their transformation into severe or dangerous conditions. The favorable results to be obtained are the more evident the earlier in the history of the disease this treatment is undertaken.

2. The most favorable cases for cure by this means of treatment alone are the dyspepsias which are unattended by fever, the gastric form will yield most readily, the mixed gastric and intestinal form less readily, and the intestinal form least readily. The chronic forms of dyspepsia yield to this treatment less readily than the acute, and the different varieties yield in the same order as mentioned for the acute forms.

3. Irrigation is also useful for the quickly-developing disorders of the stomach and bowels, for example, the specific form of diarrhœa. But it should be used in conjunction with other therapeutic means.

4. The subacute and chronic disorders of the stomach and bowels may gradually be overcome if, with the irrigation of the stomach and the internal medication, careful efforts are observed to strengthen the system at large.—*Archives Pœdiatrics.*

ANTIPYRETICS IN INFANTILE THERAPEUTICS.

Investigations by Demme (*La Cronica Med.*) were made at the hospital at Bern. From these it was deduced that in temperatures from 38.5° C. to 39.5° C. of brief duration there is no indication for the use of antipyretics. For such conditions cold packs are preferable, and if there is insomnia and restlessness, baths at 25° C. to 28° C. for five or ten minutes should be given twice daily. The elevated temperatures are those which call for particular attention, though one must also take into consideration their cause, and the resisting power of the patient. In typhoid fever, acute rheumatism, and broncho-pneumonia they fill an important indication, but not in diphtheria, the exanthemata, or fibrinous pneumonia. It is not advisable to combine the use of antipyretics and cold baths; with the former warm baths should be used. In cases in which there is cyanosis the warm bath may be used and cold affusions to the head and nucha. If the digestive tract is tolerant, one may use salicylate of soda internally, but salol should be used if there is a tendency to vomiting and diarrhœa. Of the former, half a gramme to a gramme may be given to children two to four years of age, one to two grammes to those of five to ten years, two to three grammes from eleven to fifteen years. Of salol, twenty-five to thirty centigrammes may be given three times daily to children of two to four years, fifty to seventy-five centigrammes three or four times daily to those of five to ten years, seventy-five to one hundred centrigrammes three to four times daily to those of eleven to fifteen years. Thalline has been used by the author with good results, but it will sometimes produce collapse. In broncho-pneumonia the use of antipyrin in an aromatic solution with a small quantity of alcohol is recommended, provided it does not produce digestive disturbance. The dosage is twenty to forty centigrammes every hour for the ages two to four, fifty to seventy-five centigrammes from five to ten, seventy-five to one hundred centigrammes from eleven to fifteen. Should hectic fever supervene in the course of a broncho-pneumonia, quinine should be substitued for antipyrin.—*Archives Pœdiatrics.*

THE USE OF PURE BENZOLE IN WHOOPING COUGH.

Dr. W. Robertson, writes in the *Lancet* that after some years' experience of the use of benzole in whooping-cough he can safely say that it effects better results than all the other remedies recognized as useful in this affection. In the adult and child it is of equal benefit. In an infant just now under treatment the attacks have been reduced from twenty or thirty in the night to two or three, and whereas when the treatment was

begun evidences of bronchitis were present, now the chest is clear and the child able to be taken out of doors daily. All this improvement was brought about in less than ten days. He has administered benzole in whooping cough, where convulsions and other complications were fast reducing all chances of recovery, with perfect success in a few days. In adults, where pertussis assumes often serious aspects, benzole has proved equally efficacious. Two minims in mucilage are sufficient for a child six months old, and five minims in mucilage on sugar or in capsule for adults. Whenever the benzole odor is observed in the breath of the patient, then all anxiety as to the result may be allayed.

HYGIENE.

CARBOLIC ACID, CREOLIN AND LYSOL.

From *Revue D'Hygiene* we extract the following notes on the work of Drs. Remonchemps and Sugg, relative to the comparative disinfecting values of carbolic acid, creolin and lysol. The last is a comparatively new addition to the list of disinfectants. The result of various studies of creolin were given in the Fifth Annual Report.

The authors used the bacilli and spores of anthrax, of typhoid fever, and of cholera in their provings. On the free spores the agents all act slowly; creolin and lysol act a little more promptly than carbolic acid on cultures in bouillon, but the difference would not amount to much in practice. There is, however, an important element of safety, due to the difference in the poisonous properties of these agents. While it took only 0.30 gramme of carbolic acid to kill a given weight of rabbit, it required 1.10 of creolin or 2.30 of lysol.

One interesting point brought out is that spots on clothing soiled with fœcal discharges of typhoid fever and cholera patients may be completely sterilized in two hours in a one per cent. solution of any one of these agents cold, but if warmed to 122° F. the sterilization is complete in thirty minutes.

With lysol, disinfection of the hands and instruments was accomplished with a five per cent. solution in five seconds, especially when warm; with a two and one-half per cent. solution, ulcers and cavities were disinfected in five minutes.

Lysol is a thick, light brown liquid with a specific gravity of 1.042. It is perfectly soluble in water, and forms a clear solution in contradistinction to creolin which forms a milky opaque emulsion. In washing in a solution of lysol it forms a lather, and thus, while exerting the action of a disinfectant, it plays the part of a soap. It, therefore, has the advantage of easily and rapidly permeating tissues with which it is brought into contact.—*Sanitary Inspector.*

STERILITY OF FAT PEOPLE.

Obesity is an obstacle to fecundation in all animals; and this law obtains also in the vegetable kingdom. Hippocrates enrolled this among his aphorisms. As proof, he cited the frequent sterility of the Scythian women, often fat, in comparison with the remarkable fecundity of their slaves, who become pregnant upon the least provocation.

Without seeking for demonstrative instances in Eastern countries, M. H. Kisch (*Le Bull. Med.*) has ascertained that while sterility exists on an average in one household in ten, or at least in more than one in eight—six among the aristocracy—this proportion is increased to one in five when the wife or both parties are fat; if we reckon families which have only one child, in such cases there will be found a proportion of one to four.

It is useless to insist that mechanical obstacles, in consequence of obesity on the part of one or the other, and especially on the part of both, to sexual congress are the cause. It should be observed that this condition is habitually accompanied by a decided frigidity. In addition, M. Kisch has observed that, though the virile power is preserved, the spermatic fluid is often destitute of spermatozoids (9 per cent.,) and even then they evince but little vitality.

With the woman, whose role in sterility is the most important, obesity is accompanied by a premature menopause; or if continued, the discharge is scant, void of color, and scarcely existent. Catarrhal affections of the vulva and of the uterus are frequent in such cases; and these concomitants are important in this regard.

It has been observed that when a regime, well advised and pursued, has resulted in removing, at least in part, the obesity, the genital sense revives, and with it the prolific aptitudes. On the other hand, if obesity is the occasion of sterility, it does not always entail deplorable consequences, and non-sterile women who are fat are no rarity.—*Weekly Medical Review.*

MEDICAL CHEMISTRY.

RAPID ESTIMATION OF NITRATES IN WATER.

In place of the present somewhat cumbersome methods in vogue for detecting the presence of, and estimating (approximately) the quantity of, nitrates in drinking water, George Harrow (in *Jour. Chem. Soc.*) proposes a new method, which is based upon Griess' color test for nitrous acid, the nitrate being for this purpose previously reduced by zinc dust. The author says:

The method which I have devised for this purpose is founded on Griess' extremely sensitive nitrite test (alpha-naphthylamine and sulphanilic acid), and depends on the conversion of nitric acid into nitrous acid by means of zinc dust; that this conversion is a partial one, and that other products—ammonia and hydroxylamine—are formed, does not affect the delicacy of the test or the accuracy of the determination.

The test solution used consists of

Alpha-Naphthylamine	1 Gm.
Sulphanilic Acid	1 Gm.
Ordinary strong Hydrochloric Acid	25 C.c.

dissolved in about 200 C.c. of distilled water, boiled with a small quantity of animal charcoal, filtered, and made up to 500 C.c.

There are also required standard solutions containing

1.0 part N as	nitrates per 100,000
0.1 " "	" " "
0.01 " "	" " "

To prepare these solutions, 0.721 Gm. of pure and dry potassium nitrate is dissolved in 1 liter of water; the resulting solution contains 10 parts of N per 100,000, and may be readily diluted to the strength required. If many water analyses are to be made, it is as well to make up a quart of each of the standards.

A small quantity of zinc dust is also required, contained in a wide-mouthed bottle, into the cork of which a miniature spatula, constructed of brass or platinum foil, should be fixed.

The process is conducted as follows: Fifty C.c. of each water to be tested—and as many as four estimations may readily be conducted at the same time—are placed in beakers (100 C.c. contents) side by side on a sheet of white paper, and with them, in three smaller beakers, 50 C.c. of each of the standard nitrate solutions; to each beaker is now added 10 C.c. of the test solution, and afterwards a very small quantity of zinc dust (7 to 8 Mgm.) by means of the miniature spatula; the quantity added should be approximately the same in each case, and I find that there is no difficulty in effecting this. If nitrate be present in the waters a more or less intense pink color will make its appearance, and this color may be compared with that produced in the three standard nitrate solutions, after the lapse of fifteen minutes; a rough approximation to the truth is obtained in this first experiment.*

To get an accurate result the water must be diluted until the color produced is very nearly like that given by one of the standards; perhaps the greatest accuracy may be obtained with the most dilute standard, and, if it be used, a hundredfold dilution of the water to be tested is frequently advisable; the necessary dilution is, of course, indicated by the first experiment.

The diluted waters are again tested against standards 0.1 or 0.01, and, after fifteen minutes, the colors carefully compared in Nesslerizing cylinders of equal calibre, which may be conveniently graduated at the side. The standard solution occupying 60 C.c. in one cylinder, the water tested is run into the other until the depth of color appears to be equal; a reading is then made of the quantity necessary. Say 45 C.c. were employed: then $45 : 60 :: 0.1 : x$ (=0.133); and supposing the water to have been ten times diluted, it would contain 1.33 parts nitrogen as nitrates and nitrites.

The advantages of the process are its rapidity, simplicity, and ease of execution, and the small quantity of water required for analysis. Twenty C.c. are sufficient for the purpose, and enable one to make several determinations.

The only precaution necessary, so far as I have observed, is to avoid the addition of large quantities of zinc dust, which would decolorize the solution.—*Amer. Drug.*

*If *nitrites* are present the pink color will, of course, appear without the addition of zinc dust: Griess' test.

NEWS AND MISCELLANY.

THE HUDSON COUNTY, (N. J.,) MEDICAL SOCIETY.

Dr. Thomas H. Manley, of New York was the guest of the Hudson Co. (N. J.) Medical Society on the evening of October 6th and presented an essay entitled "The Etiology or Causation of Inguinal-Hernia, in the Male Sex."

ADVICE TO A YOUNG PHYSICIAN.

The following letter, written eighty years ago by Dr. Benjamin Rush, applies so well to present conditions and is so full of sound advice that we publish it here:

"PHILADELPHIA, April 21, 1812.

"DEAR SIR:—The facility with which a medical education is acquired in our country has multiplied physicians to such a degree that I do not know of a spot in the United States in which you would fix yourself with more advantage than in the one you now occupy. Competition and slow pay are now the conditions of a medical life everywhere. My advice to you is to remain where you are; you will grow with the growth of the settlement. Purchase upon credit, if possible, a small farm; a little debt will make you industrious and furnish you with an excuse to send in your bills as soon as your patients recover. Employ the leisure which a healthy season will give you in agricultural labors; the more you will obtain in this way the more independent you will be of your patients, and, of course, the more you will be courted by them. Happiness does not consist in wealth. A competence, books, alternate labor and ease, to use the words of the poet Thomson, a good wife, a few friends, vicinity to a church, and conduct regulated by the principles of the Gospel constitute the sum total of all the happiness this world is capable of giving, and these may all be possessed and enjoyed in your present situation.

"From, dear Doctor,

"Yours truly and affectionately,

"BENJ. RUSH.

"To DR. PETRIKEN."—*Med. Rec.*

THE CANCER GRAFTS.

"Full many a shaft at random sent," as the poet observes, "finds mark the archer little meant." This remark certainly finds application in the *ricochet* at Berlin of the scandal evoked at Paris by M. Cornil's communication on the grafting experiments. The most careful scrutiny by journalists in quest of provender has failed to fix the crime on any French surgeons, but the attention thus directed to the subject has had for effect to focus the bull's eye glare of public opinion on certain observations rendered by Drs. Hahn and von Berkmann, in the *Deutsche Medizinische Wochenschrift* as long ago as November, 1887. These gentlemen, indeed, gave the results of their experiments in this direction, these results coinciding with those chronicled by M. Cornill's anonymous correspondent. It will be seen, however, from our German correspondence that the whole affair is an old one revived for the dead season, and that the cancer bacillus—as mythical as the sea serpent—has been called into existence to fill a hiatus. It is, indeed, the fact, that years ago both Prof. Hahn and Prof. von Bergmann, in order to ascertain whether cancer could be transferred from one body to another, did persuade some patients who were hopelessly ill from the disease to allow them to try if cancer growing in one part of the body could be made to grow in another, and with the patients' free consent a small piece of cancerous tissue was removed from one breast and inserted into the flesh of the other, which was up to then free from disease, with the result that the transplanted piece "took root" and grew. Such experiments are, in our opinion, however, unjustifiable, as they are a direct violation of the Hippocratic canon that the art of medicine has but two legitimate objects, viz., the promulgation of human life, and the relief of human suffering, and it cannot be said that either was fulfilled in the case of the objects experimented on. Every professional man will regret that any explanatio on such a subject has been called for—a denial would have been infinitely more satisfactory. It is curious that the facts as related should not have excited criticism at the time. Their having been allowed to pass unchallenged looks as if professional indignation were but an echo, and a consequence of outside pressure. We know, of course, that in truth our ignorance is more to blame than our want of humanity. No English surgeon would even have dared to accuse himself publicly in any of our medical societies of such a gross breach of his duty to his patient, for without undue insular pride, we venture to assert he would thereby have irrevocably sealed his professional doom.—*Med. Press.*

THE LAW AS REGARDS TWINS.

When twins are born in France, the last born is considered by the law the eldest! Consequently, if both survive, and, in case of boys, reach manhood, the second is called to the army to serve, being pronounced the eldest. By some extraordinary calculation the medical men who were consulted at the passing of the act years ago came to the conclusion that the last born of twins was always the first conceived.—*Medical Press and Circular.*

WHAT DID SHAKESPEARE DIE OF?

There is a tradition of very respectable antiquity that he died of a fever contracted through going on a drinking bout with Ben Jonson and other boon companions. Mr. J. F. Nisbet, in his new work, "The Insanity of Genius," discusses the question from an entirely new point of view, that of pathology. In the author's opinion, Shakespeare died of paralysis, or some disease akin to paralysis. The signature to the will, he holds, affords strong presumption of this, but he has also other facts to adduce in support of this theory. In 1657, Dr. Hall's medical cure-book was published by James Cooke, "A practitioner in physick and chirurgery." Dr. Hall, as is well known, was Shakespeare's son-in-law, and his book proves beyond doubt that nervous disease existed in Shakespeare's family, a fact which Mr. Nisbet considers accounts for the short average duration of the lives of its members, and the speedy extinction of the line of Shakespeare's direct descendants.—*Medical Times.*

YALOO, THE DOUBLE-BODIED HINDOO LAD.

Dr. Geo. Bleything, having examined the double-bodied Hindoo lad recently brought to this country, has made the following report in regard to him: "I find him to be a remarkable case of arrested development in fœtal life. The boy himself is a fine, bright, well-developed youth of eighteen years, and attached to the extremity of his sternum is the incomplete body of a twin. The arms are given out from the attachment to the sternum of the young man, without scapulæ. The trunk is short and incomplete, but terminates in a pelvis, with which the legs are connected. There would seem to be no separate heart in the parasite, and the pulse, both radial and axillary, is synchronous with that of the autosite. There is anchylosis of the joints in the undeveloped child. The young man is conscious of a sensation when this second body is roughly touched." The parasitic growth appears to give him very little inconvenience, and he is very agile in his movements.—*Bost. Med. Surg. Jour.*

TUBERCULOSIS IN MEXICO.

Dr. D. Orvañanos states that the federal district of the Republic is a proper place for the prevention and cure of consumption. The elevation of the country varies from 2300 to 2900 metres (7550 to 9500 feet). The mean annual barometric pressure is 15.5 C. (29.09 inches). The maximum temperature is 49.2° C. (120.56° F.); the minimum is minus 7.2° C. (19.04° F.). The mean humidity of the air is 60. The rainfall, in winter, is 22.7 millimetres (0.9 inch); in spring, 174 millimetres (6.96 inches); in summer, 359 millimetres (14.36 inches); in autumn, 63.5 millimetres (2.54 inches). The prevailing wind is N.W. The mean annual amount of ozone is 4.4 tint [test not given].

The *climate* is temperate and pretty equal, with great daily changes. Extraordinary irradiation, due to dryness of the air and the absence of wind and clouds; frequent hoar-frosts during the early morning hours, even in June and July; eternal snow at an elevation of 4 kilometres (13,123 feet,) at a distance of only a few kilometres from the City of Mexico. Inhabitants of the federal district, 440,000.

Consumption Mortality.—Consumption is common in the lower parts of the Republic, up to 1,000 metres elevation (mortality, 15 per cent.) It diminishes gradually, as the elevation increases; in the municipality of Mexico, 8.4 per cent.; in Tacubaya, 5.51 per cent.; in Xochimilco (14,000 inhabitants,) 0.94 per cent.; in the villages of Actopam and Ostctepec (2,000 inhabitants each, pure Indians) consumption is unknown. General average mortality, Tacubaya excepted, 2.07 per cent.

Even advanced cases of consumption may may be cured here, as proven by the experience of medical men and post-mortem records. The higher mortality from consumption in the capital and town of Tacubaya is accounted for by the considerable number of people living in these places belonging to foreign countries and other parts of the Republic (150,000); the rural villages of the district enjoy almost complete immunity from tuberculosis. The author accounts for it in the following manner: The surface temperature of the soil often goes down to 0.° C. (32° F.), causing destruction of microbes and of the bacillus of Koch present in it; the surface of the soil is almost constantly dry, due to the lack of fogs, rapid evaporation, and rarified air. The luminous, calorific, and chemical intensity of the direct sunrays are very great, which helps to destroy the germs.

The author ascribes a considerable germicide action to the exhalations of flowers, which are in bloom almost all the time and over all the district, the essential oils of flowers being powerful germicides.—*El Estudio*, April, 1891.—*Satellite.*